

Company: Alereon Inc.

Test of: Camouflage (AL5955)

(Contains Commander (AL5930) and Combat
(AL5934))

To: FCC Part 15 Subpart F 15.519 - Hand Held
UWB Devices

Report No.: ALER01-U2A Rev A

TEST REPORT





Test of: Alereon Inc.– Camouflage (AL5955)

To: FCC CFR 47 Part 15 Subpart F 15.519 – Hand Held UWB Systems

Test Report Serial No.: ALER01-U2A Rev A

This report supersedes: NONE

Applicant: Alereon Inc.
10800 Pecan Park Blvd, STE 100
Austin, TX 78750
USA

Product Function: UWB Module with Parallel/Serial USB
interface

Issue Date: 12th December 2018

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. Test Accreditation

MiCOM Labs, Inc. an accredited laboratory complies with the international standard ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



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1.2. Recognition

MiCOM Labs, Inc has widely recognized Electrical testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA** countries. Our test reports are widely accepted for global type approvals.

Country	Recognition Body	Status	Phase	Identification No.
model	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

**APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement.

Is a recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries
Phase I -recognition for product testing

Phase II – recognition for both product testing and certification

N/A – Not Applicable

**EU MRA – European Union Mutual Recognition Agreement.

Is a recognition agreement under which test lab is accredited to regulatory standards of the EU member countries

**NB – Notified Body

1.3. Product Certification

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-02.pdf>



United States of America – Telecommunication Certification Body (TCB)

TCB Identifier – US0159

Industry Canada – Certification Body

CAB Identifier – US0159

Europe – Notified Body

Notified Body Identifier - 2280

Japan – Recognized Certification Body (RCB)

RCB Identifier – 210

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2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	4 th December 2018	Initial draft for client review.
Draft #2	11 th December 2018	Report revised per client comments for second client review prior to formal release.
Rev A	12 th December 2018	Initial Release.

In the above table the latest report revision will replace all earlier versions.

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3. TEST RESULT CERTIFICATE

Manufacturer: Alereon Inc.
10800 Pecan Park Blvd, STE 100
Austin, TX 78750
USA

Tested By: MiCOM Labs, Inc.
575 Boulder Court
Pleasanton
California 94566, USA

Model(s): Camouflage (AL5955) and Commander (AL5930)
Combat (AL5934)

Telephone: +1 925 462 0304

Fax: +1 925 462 0306

Equipment Type: UWB Module with Parallel/Serial interface and USB interface

S/N's: Camouflage (AL5955): 18300080
Commander (AL5930): 18340126
Combat (AL5934): 18300035

Test Date(s): 6th – 21st November 2018

Website: www.micomlabs.com

STANDARD(S)

FCC CFR 47 Part 15 Subpart F 15.519

TEST RESULTS

EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

Approved & Released for MiCOM Labs, Inc. by:



Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

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4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	FCC 47 CFR Part F	2018	Radio Frequency Devices; Subpart F –Ultra Wide Band Devices
II	A2LA	August 2018	R105 - Requirement's When Making Reference to A2LA Accreditation Status
III	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
IV	ANSI C63.4	2014	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
V	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
VI	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
VII	FCC 47 CFR Part 2.1033	2016	FCC requirements and rules regarding photographs and test setup diagrams.
VIII	KDB 393764 D01 UWB FAQ v02	January 29, 2018	Ultra-Wideband (UWB) Devices frequently asked questions

4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.



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5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Alereon Camouflage (AL5955) to FCC CFR 47 Part 15 Subpart F 15.519
Applicant:	Alereon Inc. 10800 Pecan Park Blvd, STE 100 Austin, TX 78750 USA
Manufacturer:	As applicant
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	ALER01-U2A
Date EUT received:	6 th November 2018
Standard(s) applied:	FCC CFR 47 Part 15 Subpart F 15.519
Dates of test (from - to):	6 th –21 st November 2018
No of Units Tested:	3
Product Family Name:	AI5350/AI5100
Model(s):	Alereon Commander (AL5930), Camouflage (AL5955) and Combat (AL5934)
Location for use:	No fixed location Primarily hand held
Declared Frequency Range(s):	3100-10600 MHz
Type of Modulation:	BPM/BPSK
EUT Modes of Operation:	528 MHz Bandwidth
Declared Nominal Output Power (dBm):	-41.3 dBm
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	Camouflage (AL5955): 3.3V DC, 10 mA Commander (AL5930): 3.3V DC, 240mA Combat (AL5934): 5V DC, 250 mA
Operating Temperature Range:	-40 ~ +85°C
ITU Emission Designator:	510MX0D
Equipment Dimensions:	Camouflage (AL5955): W: 0.86, L: 1.98 H: 0.151 Inches Commander (AL5930): W: 0.86, L: 1.117 H: 0.151 Inches Combat (AL5934): W: 0.86, L: 2.5 H: 0.151 Inches
Weight:	Camouflage (AL5955): 0.13 oz Commander (AL5930): 0.10 oz Combat (AL5934): 0.19 oz
Hardware Rev:	2.0.0
Software Rev:	28526

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5.2. Scope Of Test Program

The scope of the test program was to test the Alereon Camouflage (AL5955 configurations in the frequency ranges 3100 - 10600 MHz for compliance against the following specification:

FCC CFR 47 Part 15 Subpart F – 15.519

Compliance Measurement Procedures for Unlicensed National Information Infrastructure devices operating in the 3100 - 10600 MHz bands.

Model Differences

Camouflage (AL5955) – Serial Interface
Commander (AL5930) – Parallel Interface
Combat (AL5934) – USB Interface

The manufacturer declares that all 3 Models use exactly the same RF chipset (See Manufacturers declaration in Appendix B). Conducted testing was performed on the Combat (AL5934) model with USB Interface.

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5.3. Equipment Model(s) and Serial Number(s)

Type (EUT/Support)	Equipment Description (Including Brand Name)	Mfr.	Model No.	Serial No.
EUT	UWB Module with Serial interface	Alereon Inc	Camouflage (AL5955)	18300080
EUT	UWB Module with Parallel interface	Alereon Inc	Commander (AL5930)	18340126
EUT	UWB Module with USB interface	Alereon Inc	Combat (AL5934)	18300035
Support	Host Board	Alereon Inc	AL5957	
Support	Laptop	Lenovo		

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
Chip	Taiyo Yuden	AH086M555003	Patch	1.0/0.2/0.2	--	--	No	3168-3696
Chip	Taiyo Yuden	AH086M555003	Patch	0.2/-0.2/0.1	--	--	No	6600-7656
Chip	Taiyo Yuden	AH086M555003	Patch	0.1/-1.8/-1.8	--	--	No	7656-8712
BF Gain - Beamforming Gain Dir BW - Directional BeamWidth X-Pol - Cross Polarization								

5.5. Cabling and I/O Ports

Custom 60 pin interface to Host Board/ USB



5.6. Test Configurations

Results for the following configurations are provided in this report:

Channel Bandwidth(s)	Transmission Rate	Channel Frequency (MHz)		
		Low	Mid	High
500 MHz	Max	3432	3960	4488
500 MHz	Max	6600	7128	7656
500 MHz	Max	7656	8184	8712

5.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. NONE

5.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE



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6. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
UWB Bandwidth	Complies	View Data
Peak Power	Complies	View Data
Peak Power Density	Complies	View Data
Spurious Radiated Emissions 1000 MHz - 18000 MHz	Complies	View Data
Spurious Radiated Emissions in GPS Bands	Complies	View Data
50 MHz Radiated Peak	Complies	View Data
Shutdown Timing Requirements	Complies	View Data
Comments: None		

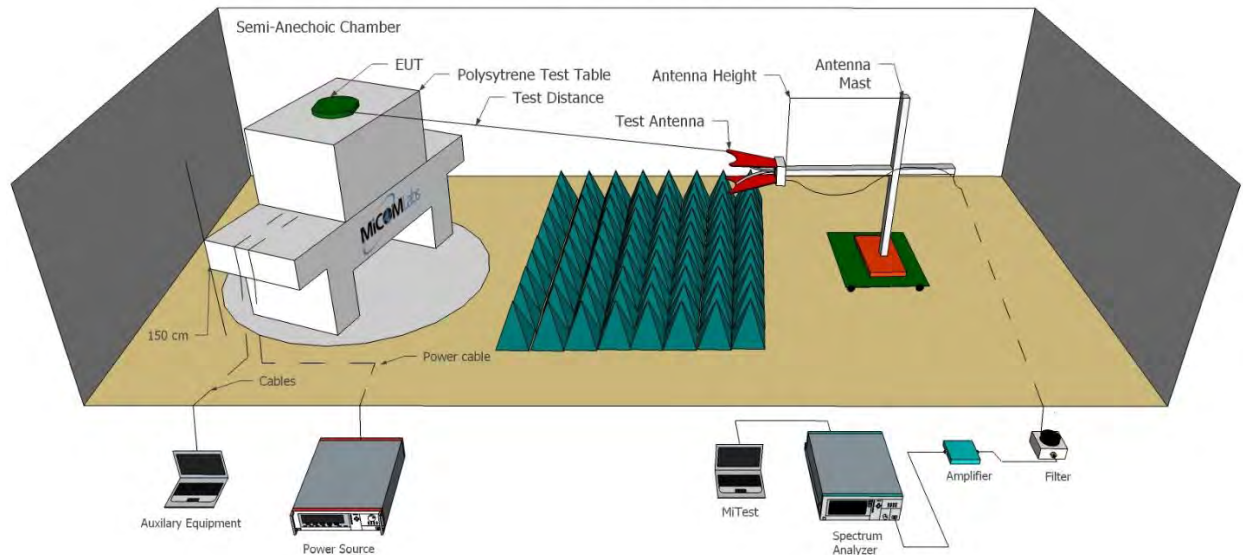
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7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Radiated Emissions - 3m Chamber

The following tests were performed using the radiated test set-up shown in the diagram below. Radiated emissions above 1GHz.

Radiated Emissions Above 1GHz Test Setup



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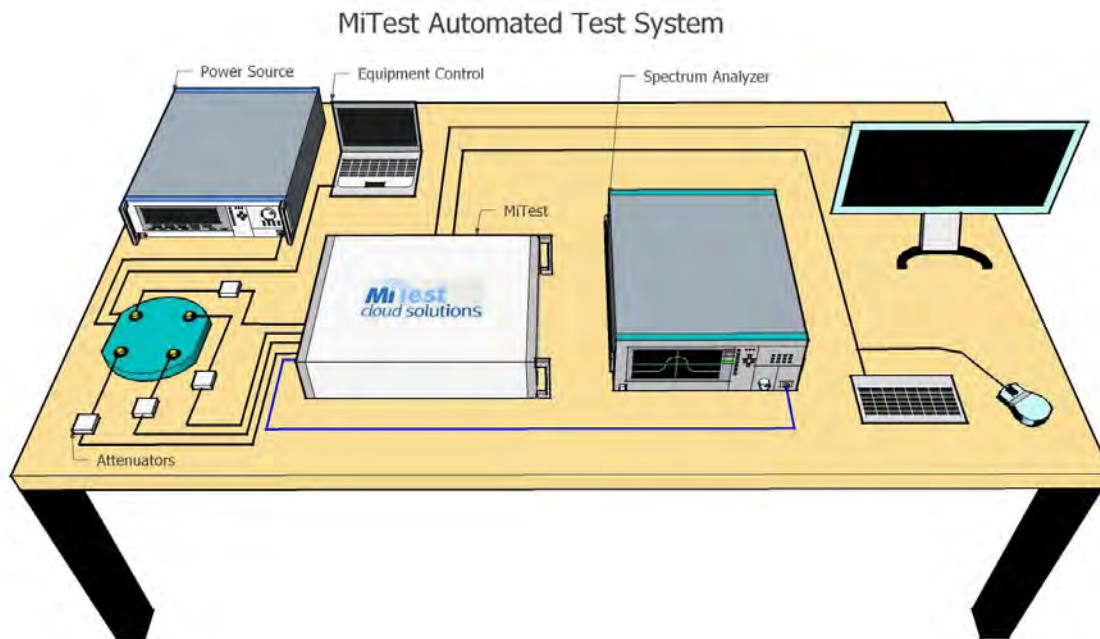
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	21 Jan 2019
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2019
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2019
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	12 Dec 2018
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Dec 2018
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	12 Dec 2018
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	9 Oct 2019
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	9 Oct 2019
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	9 Oct 2019
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	9 Oct 2019
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	24 Aug 2019
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	24 Aug 2019
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2018
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	24 Aug 2019
CC05	Confidence Check	MiCOM	CC05	None	21 Jan 2019

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7.2. RF Conducted Emissions

The following tests were performed using the conducted test set-up shown in the diagram below. UWB Bandwidth, Peak Transmit Power, Peak Power Density, Shutoff Timing Requirements



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Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	20 Jan 2019
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	20 Jan 2019
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	20 Jan 2019
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	20 Jan 2019
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	20 Jan 2019
249	Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	30 Oct 2019
361	Desktop for RF#1, Labview Software installed	Dell	Vostro 220	WS RF#1	Not Required
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2019
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.1	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
436	USB Wideband Power Sensor	Boonton	55006	8731	14 Sep 2019
440	USB Wideband Power Sensor	Boonton	55006	9178	22 Sep 2019
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Sep 2019
442	USB Wideband Power Sensor	Boonton	55006	9181	6 Oct 2019
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	20 Sep 2019
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2018
515	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen with DFS	515	20 Jan 2019
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	24 Dec 2018

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8. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by [MiTest](#). [MiTest](#) is an automated test system developed by MiCOM Labs. [MiTest](#) is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.



The MiCOM Labs "[MiTest](#)" Automated Test System" (Patent Pending)

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9. TEST RESULTS

9.1. UWB Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Standard:	FCC CFR 47:15.519	Ambient Temp. (°C):	24.0 - 27.5
Test Heading:	UWB Bandwidth	Rel. Humidity (%):	32 - 45
Standard Section(s):	ANSI C63.10 Section 10.1	Pressure (mBars):	999 - 1001
Reference Document(s):	See Normative References		
Test Procedure for UWB Bandwidth Measurement The UWB Bandwidth is measured radiated, at a 3-meter distance, while EUT is operating in transmission mode at the appropriate center frequency. The Resolution Bandwidth was set to 1MHz RBW IAW ANSI C63.10. Testing was performed under ambient conditions at nominal voltage. Test configuration and setup used for the measurement was per the Radiated Test Set-up section specified in this document.			

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Equipment Configuration for UWB Bandwidth			
Variant:	500 MHz Bandwidth	Duty Cycle (%):	100
Data Rate:	-	Antenna Gain (dBi):	1.5
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Equipment Configuration for UWB Bandwidth			
Variant:	Band Group 1	Duty Cycle (%):	100
Data Rate:	-	Antenna Gain (dBi):	Client Info Required
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
3432.00	Port A 509.174	509.174	509.174		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
3960.00	PortA 508.116	508.116	508.116		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
4488.00	Port A 507.014	507.014	507.014		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

The above values are representative of the worst case value between polarities and based on the power measurements.



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Equipment Configuration for UWB Bandwidth

Variant:	Band Group 3	Duty Cycle (%):	100
Data Rate:	-	Antenna Gain (dBi):	0.5
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	Port A				
6600.00	510.321	510.321	510.321		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	PortA				
7128.00	509.920	509.920	509.920		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	Port A				
7656.00	508.818	508.818	508.818		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

The above values are representative of the worst case value between polarities and based on the power measurements.

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Equipment Configuration for UWB Bandwidth

Variant:	Band Group 6	Duty Cycle (%):	100
Data Rate:	-	Antenna Gain (dBi):	0.25
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	Port A				
7656.00	506.613	506.613	506.613		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	PortA				
8184.00	509.920	509.920	509.920		

Test Frequency	Measured 10 dB Bandwidth (MHz)	10 dB Bandwidth (MHz)			
		Highest	Lowest		
MHz	Port A				
8712.00	509.920	509.9200	509.920		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

The above values are representative of the worst case value between polarities and based on the power measurements.

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9.2. Peak Transmit Power

Conducted Test Conditions for Maximum Radiated Output Power			
Standard:	FCC CFR 47:15.519 (c)	Ambient Temp. (°C):	24.0 - 27.5
Test Heading:	Radiated Emissions UWB Transmission	Rel. Humidity (%):	32 - 45
Standard Section(s):	ANSI C63.10 Section 10.3.5	Pressure (mBars):	999 - 1001
Reference Document(s):	None		
Test Procedure for UWB Transmission Testing was performed under ambient conditions at nominal voltage. Test configuration and setup used for the measurement was per the Radiated Test Set-up section specified in this document. Supporting KDB's referenced below. Operating Frequency Band: 3100-10600 MHz Limits Maximum EIRP (dBm)			
Frequency (MHz)	EIRP Limit (dBm)	EIRP at 3 Meters (dBuv/m)	
3100 - 10600	-41.3	53.9	

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Equipment Configuration for RF Output Power

Variant:	Band Group 1	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	1.0/0.2/0.2
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency MHz	Measured Output Power(dBm)	Calculated Total Power	EIRP+ DCCF	Limit	Margin	EUT Power Setting
	Port A	dBm		dBm	Numeric	Numeric
3432.00	-42.92	-42.92	-41.92	-41.3	-0.62	4.0
3960.00	-41.72	-41.72	-41.52	-41.3	-0.22	4.0
4488.00	-41.92	-41.92	-41.72	-41.3	-0.42	4.0

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

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Equipment Configuration for RF Output Power

Variant:	Band Group 3	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	0.2/-0.2/0.1
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency MHz	Measured Output Power(dBm)	Calculated Total Power	EIRP+ DCCF	Limit	Margin	EUT Power Setting
	Port A	dBm		dBm	Numeric	Numeric
6600.00	-42.69	-42.69	-42.49	-41.3	-1.19	2.0
7128.00	-42.62	-42.62	-42.82	-41.3	-1.52	2.0
7656.00	-42.84	-42.84	-42.74	-41.3	-1.44	2.0

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

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Equipment Configuration for RF Output Power

Variant:	Band Group 6	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	0.1/-1.8/-1.8
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency MHz	Measured Output Power(dBm)	Calculated Total Power	EIRP+ DCCF	Limit	Margin	EUT Power Setting
	Port A	dBm		dBm	Numeric	Numeric
7656.00	-41.80	-41.80	-41.7	-41.3	-0.4	1.0
8184.00	-41.78	-41.78	-43.58	-41.3	-2.28	0.0
8712.00	-41.44	-41.44	-43.24	-41.3	-1.94	0.0

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

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9.3. Peak Power Density

Test Conditions for Maximum Peak Power Density			
Standard:	FCC CFR 47:15.519 (e)	Ambient Temp. (°C):	24.0 - 27.5
Test Heading:	Radiated Emissions UWB Transmission	Rel. Humidity (%):	32 - 45
Standard Section(s):	ANSI C63.10 Section 10.3.6	Pressure (mBars):	999 - 1001
Reference Document(s):	None		

Test Procedure for UWB Transmission

Testing was performed under ambient conditions at nominal voltage.

Test configuration and setup used for the measurement was per the Radiated Test Set-up section specified in this document. Supporting KDB's referenced below.

Measurements were gathered with a RBW of 1MHz and converted to 50MHz using the following formula:

$$\text{EIRP}_{1\text{ MHz}} = \text{EIRP}_{50\text{ MHz}} + 20\log(1\text{MHz}/50\text{MHz}) = 0\text{dBm} + (-34\text{dBm}) = -34\text{dBm}$$

Operating Frequency Band:
3100-10600 MHz

Limits Maximum EIRP (dBm)

Frequency (MHz)	EIRP Limit (dBm/50MHz)	EIRP Limit (dBm/1MHz)
3100 - 10600	0	-34



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Equipment Configuration for Peak Power Density

Variant:	Band Group 1	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	1.0/0.2/0.2
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Frequency	Measured Output Power	Limit	Margin	EUT Power Setting
	dBm	dBm	Numeric	Numeric
3432.00	-36.101	-34.00	-2.10	4.0
3960.00	-35.379	-34.00	-1.38	4.0
4488.00	-35.635	-34.00	-1.64	4.0

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

Note: click the links in the above matrix to view the graphical image (plot).

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Equipment Configuration for Peak Power Density

Variant:	Band Group 3	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	0.2/-0.2/0.1
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Frequency	Measured Output Power	Limit	Margin	EUT Power Setting
	<u>dBm</u>	<u>dBm</u>	<u>Numeric</u>	<u>Numeric</u>
6600.00	<u>-35.220</u>	-34.00	-1.22	2.0
7128.00	<u>-36.648</u>	-34.00	-2.65	2.0
7656.00	<u>-36.188</u>	-34.00	-2.19	2.0

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

Note: click the links in the above matrix to view the graphical image (plot).

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Equipment Configuration for Peak Power Density

Variant:	Band Group 6	Duty Cycle (%):	99
Data Rate:	-	Antenna Gain (dBi):	0.1/-1.8/-1.8
Modulation:	BPM/BPSK	Beam Forming Gain (Y)(dB):	Not Applicable
TPC:	Not Applicable	Tested By:	SB
Engineering Test Notes:			

Test Measurement Results

Frequency	Measured Output Power	Limit	Margin	EUT Power Setting
	<u>dBm</u>	<u>dBm</u>	<u>Numeric</u>	<u>Numeric</u>
7656.00	<u>-35.495</u>	-34.00	-1.50	1.0
8184.00	<u>-36.648</u>	-34.00	-2.65	1.0
8712.00	<u>-36.858</u>	-34.00	-2.86	1.0

Traceability to Industry Recognized Test Methodologies

Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Uncertainty:	±1.33 dB

Note: click the links in the above matrix to view the graphical image (plot).

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9.4. TX Spurious Band Emissions

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47 15.519	Ambient Temp. (°C):	20.0 - 24.5
Test Heading:	Radiated Spurious and Band-Edge Emissions	Rel. Humidity (%):	32 - 45
Standard Section(s):	ANSI C63.10 Section 10.2 + 10.3	Pressure (mBars):	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious and Band-Edge Emissions

Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in max hold mode. Depending on the frequency band spanned a notch filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned. Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Limits for Restricted Bands (15.205, 15.209)

Peak emission: 68.23 dBuV/m

Average emission: 54 dBuV/m

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

$$FS = R + AF + CORR - FO$$

where:

FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss

Measurements made at 1 meter to meet noise floor to limit requirements

Frequency Range		Average Limit	
MHz	MHz	EIRP (dBm)	EIRP at 1 Meters (dBuV/m)
960	1610	-75.3	29.4
1610	1990	-63.3	41.4
1990	3100	-61.3	43.4
3100	10600	-41.3	63.4
10600	18000	-61.3	43.4



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Radiated Spurious Emissions in the GPS Bands 15.519 (d)

Frequency Range		Average Limit	
MHz	MHz	EIRP (dBm)	EIRP at 1 Meters (dBuV/m)
1164	1240	-85.3	19.47
1559	1610	-85.3	19.47

50 MHz Peak Emissions 15.519 (e)

Within 50 MHz bandwidth centered on highest radiated emissions f_M , Limit is 0 dBm EIRP. At 1 meter distance the equivalent level is 104.77 dBuVm

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9.4.1. TX Spurious Band Emissions

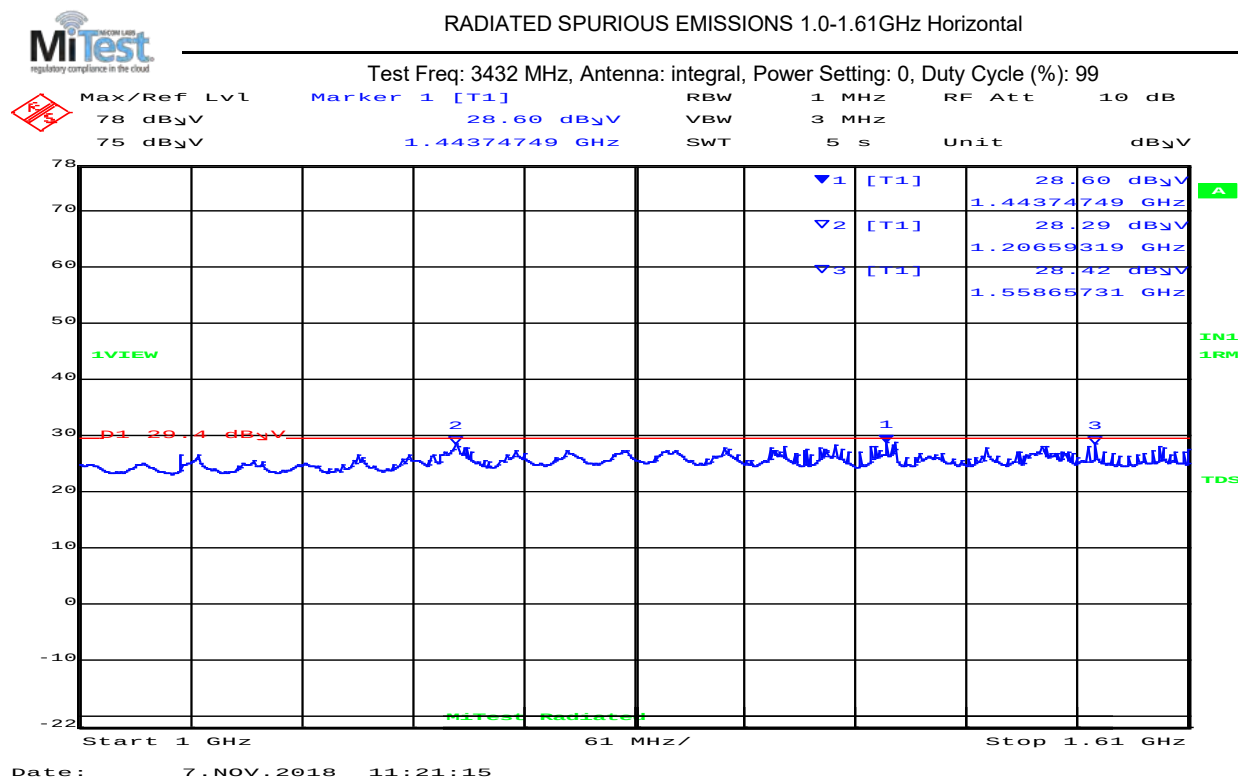
9.4.1.1. Commander AL5930

3432 MHz

Equipment Configuration for Spurious Emissions 1 - 1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1443.75*	28.2	Average	Horizontal	150	0	29.4	-1.2	Pass
2	1206.59*	26.4	Average	Horizontal	150	0	29.4	-3.0	Pass
3	1558.66*	25.2	Average	Horizontal	150	0	29.4	-4.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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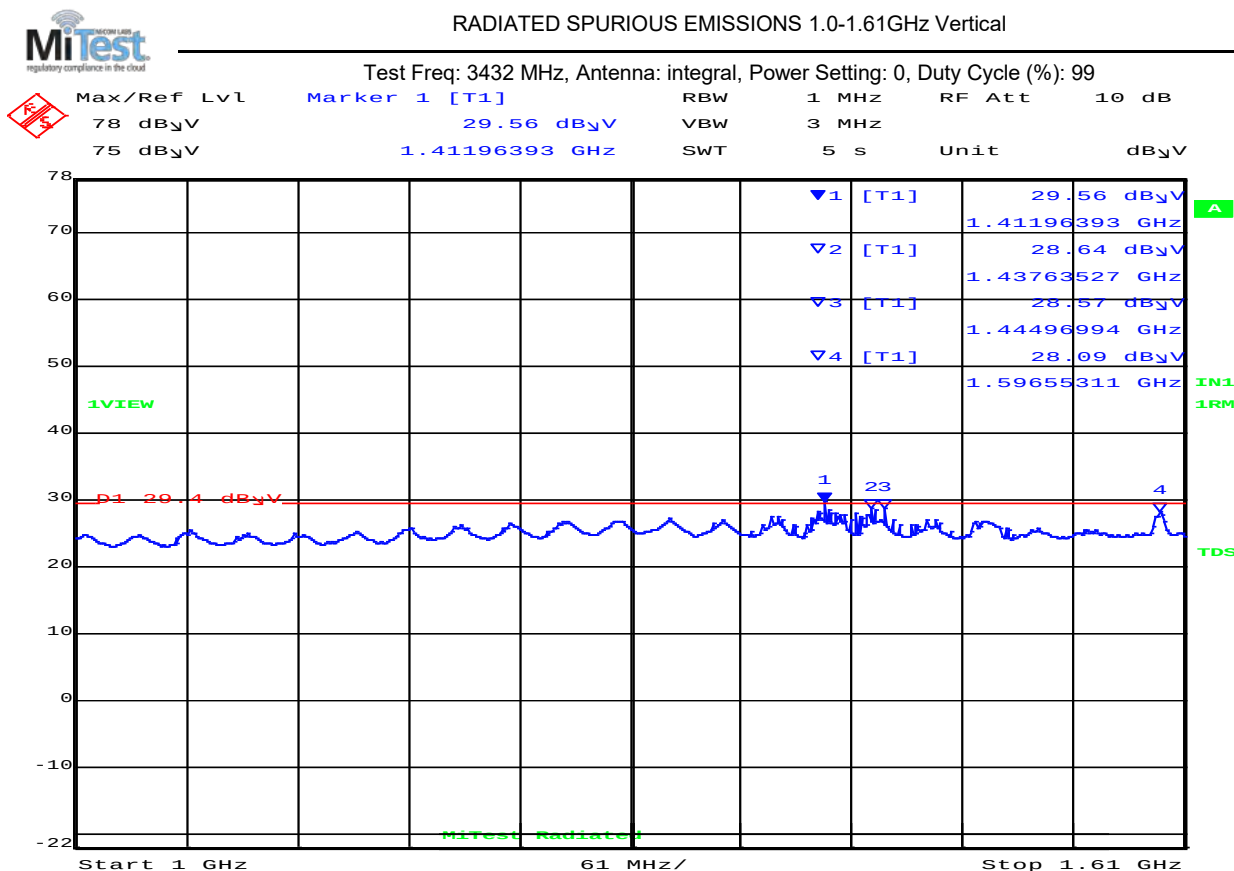


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Equipment Configuration for Spurious Emissions 1 - 1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 11:31:31

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1411.96*	28.1	Average	Vertical	150	0	29.4	-1.3	Pass
2	1437.63*	28.0	Average	Vertical	150	0	29.4	-1.4	Pass
3	1444.96*	27.5	Average	Vertical	150	0	29.4	-1.9	Pass
4	1596.55*	27.2	Average	Vertical	150	0	29.4	-2.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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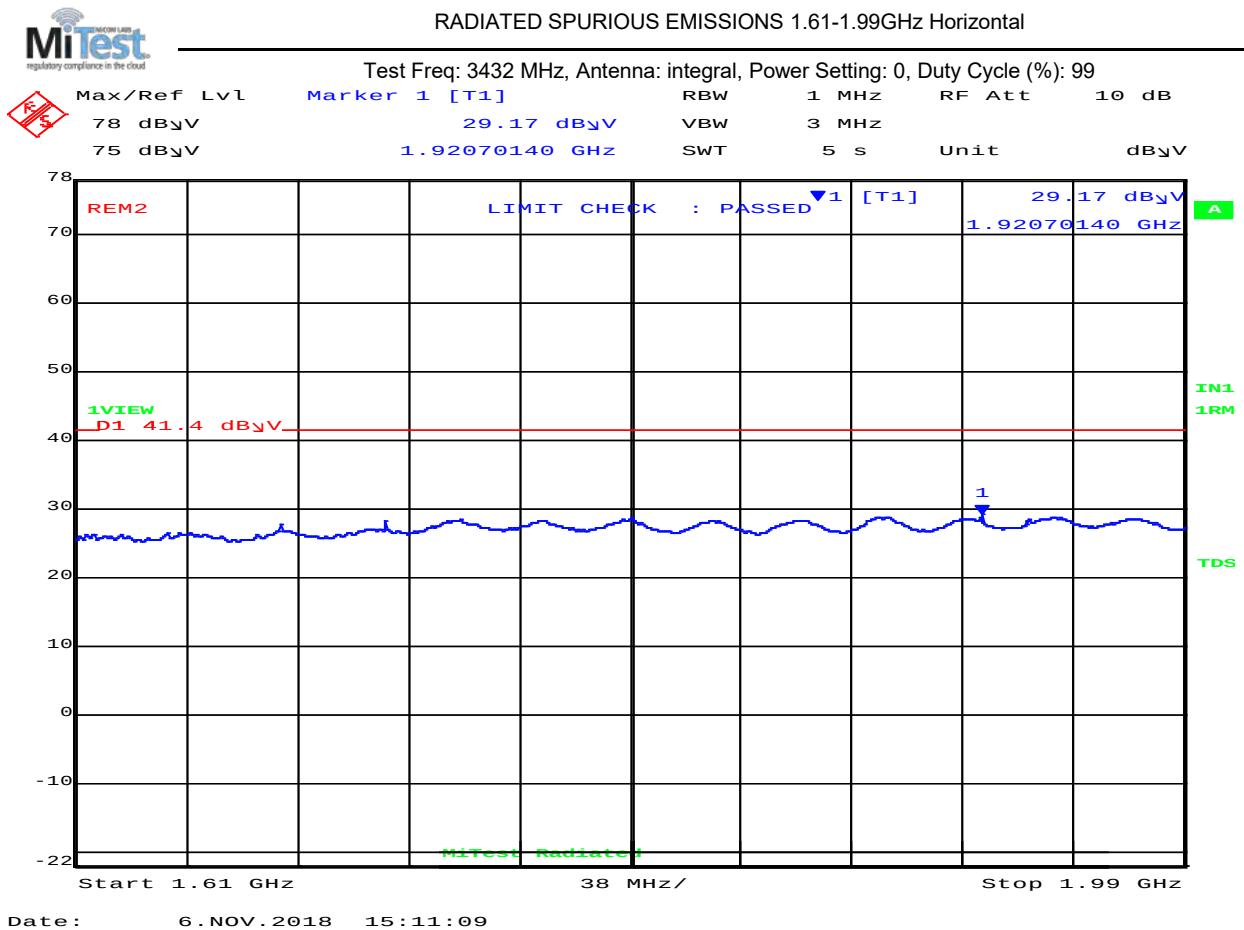


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes: Laptop Removed									

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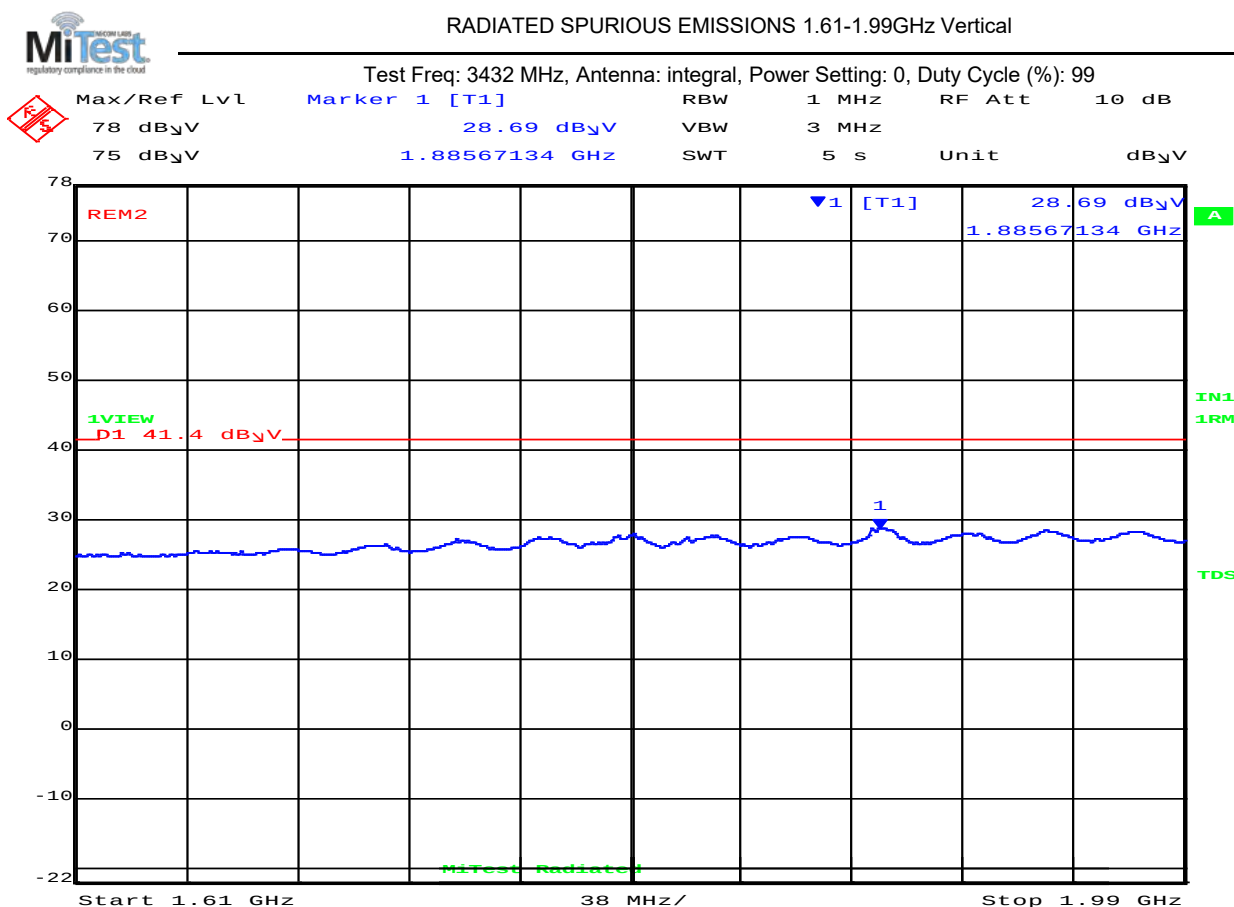


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results

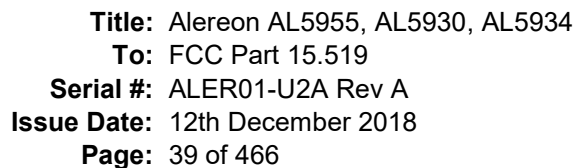


Date: 6.NOV.2018 15:12:24

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes: Laptop Removed									

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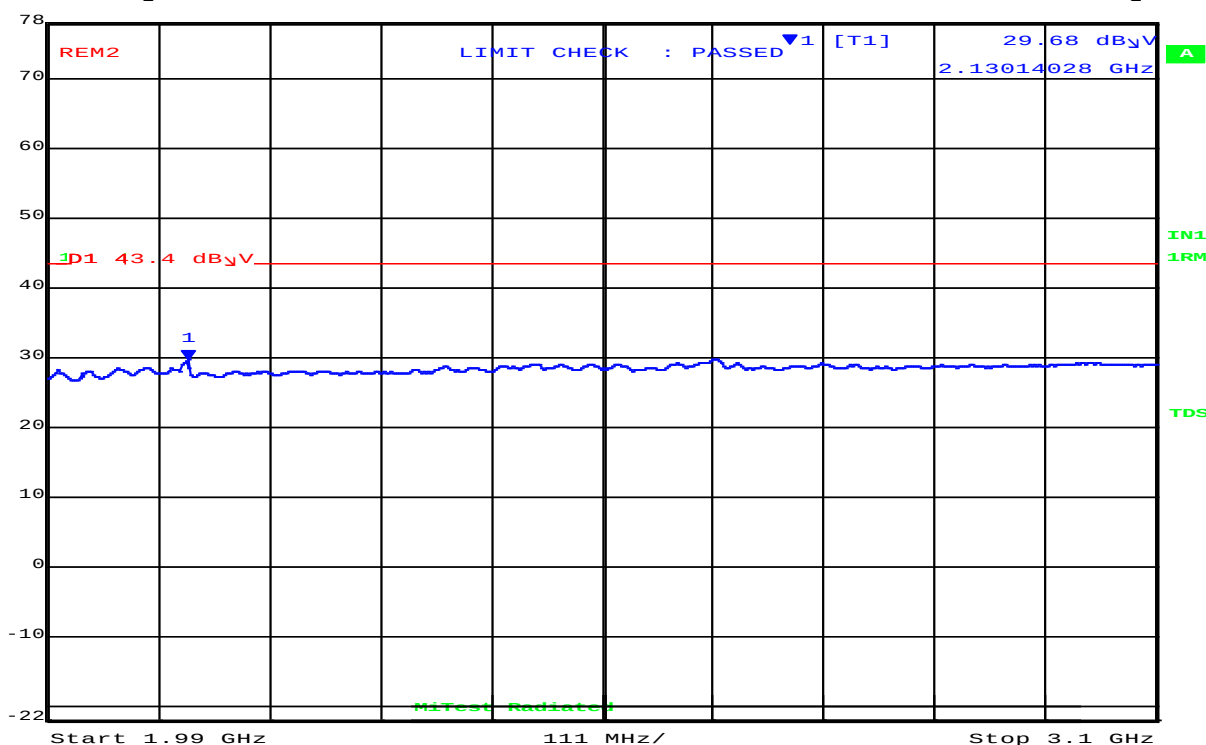


Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

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Test Freq: 3432 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99

	Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
	78 dB μ V	29.68 dB μ V	VBW	3 MHz		
	75 dB μ V	2.13014028 GHz	SWT	5 s	Unit	dB μ V



Date: 6.NOV.2018 15:14:47

1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes: Laptop Removed									

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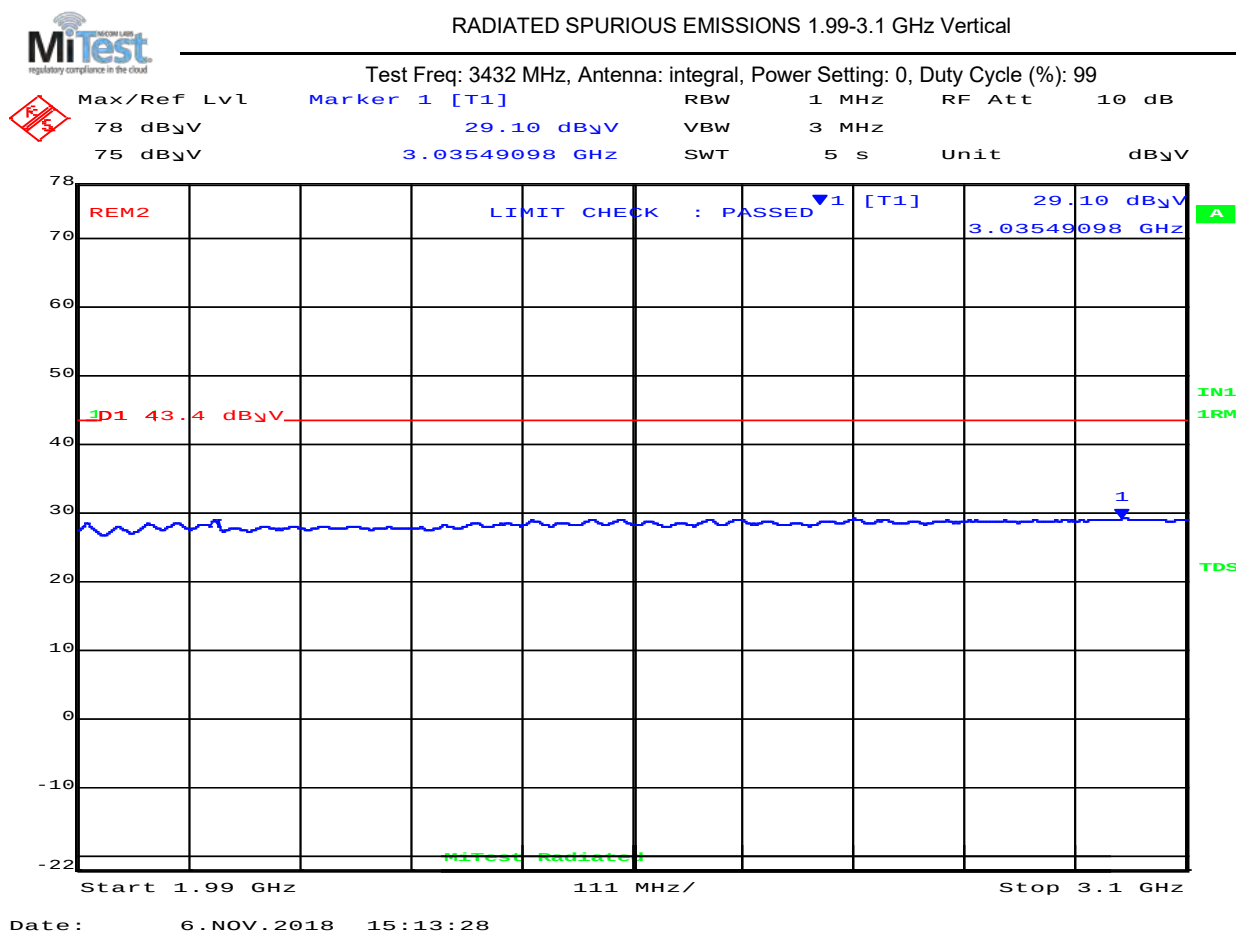


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes: Laptop Removed									

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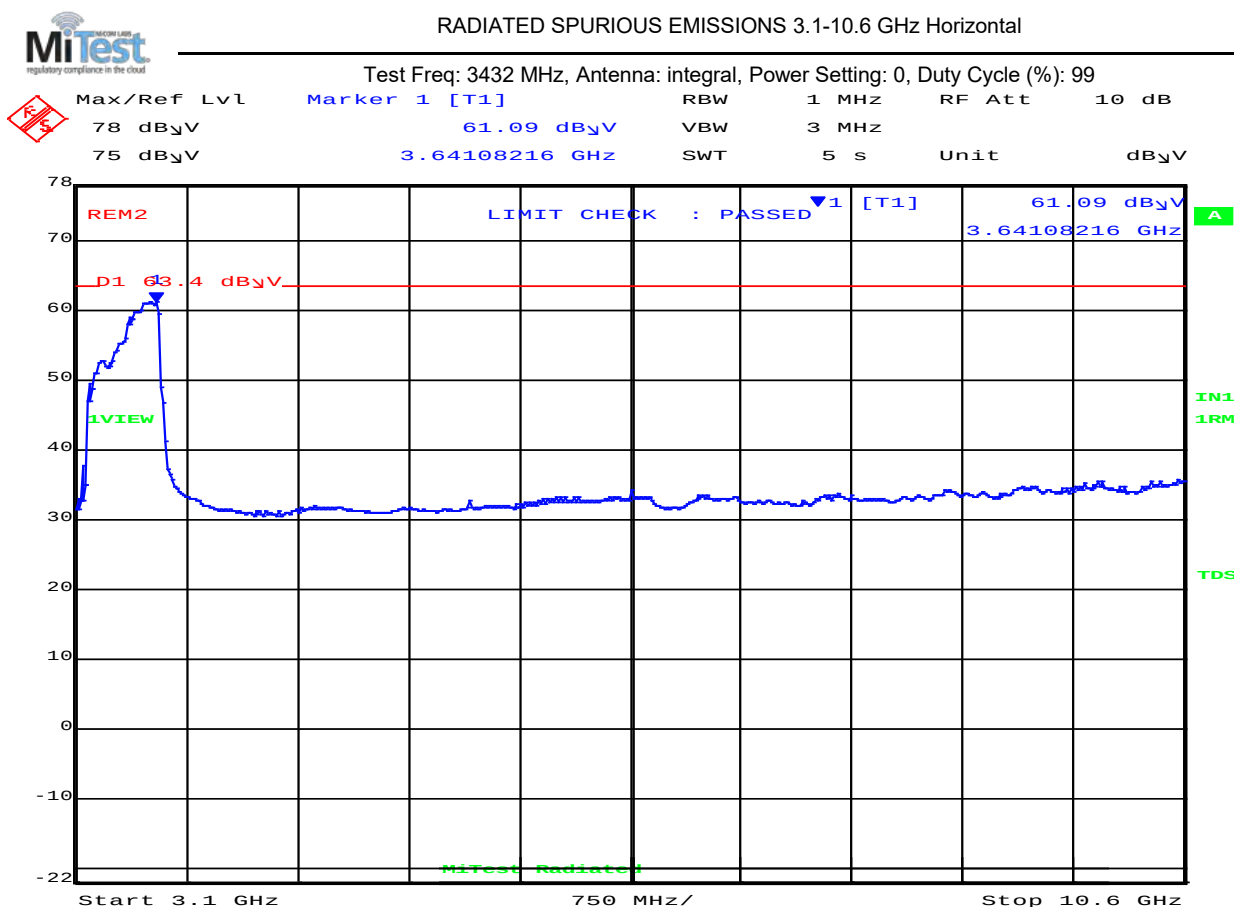


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 15:51:50

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	3641.08	59.60	Average	Horizontal	150	0	63.4	-3.8	Pass

Test Notes:

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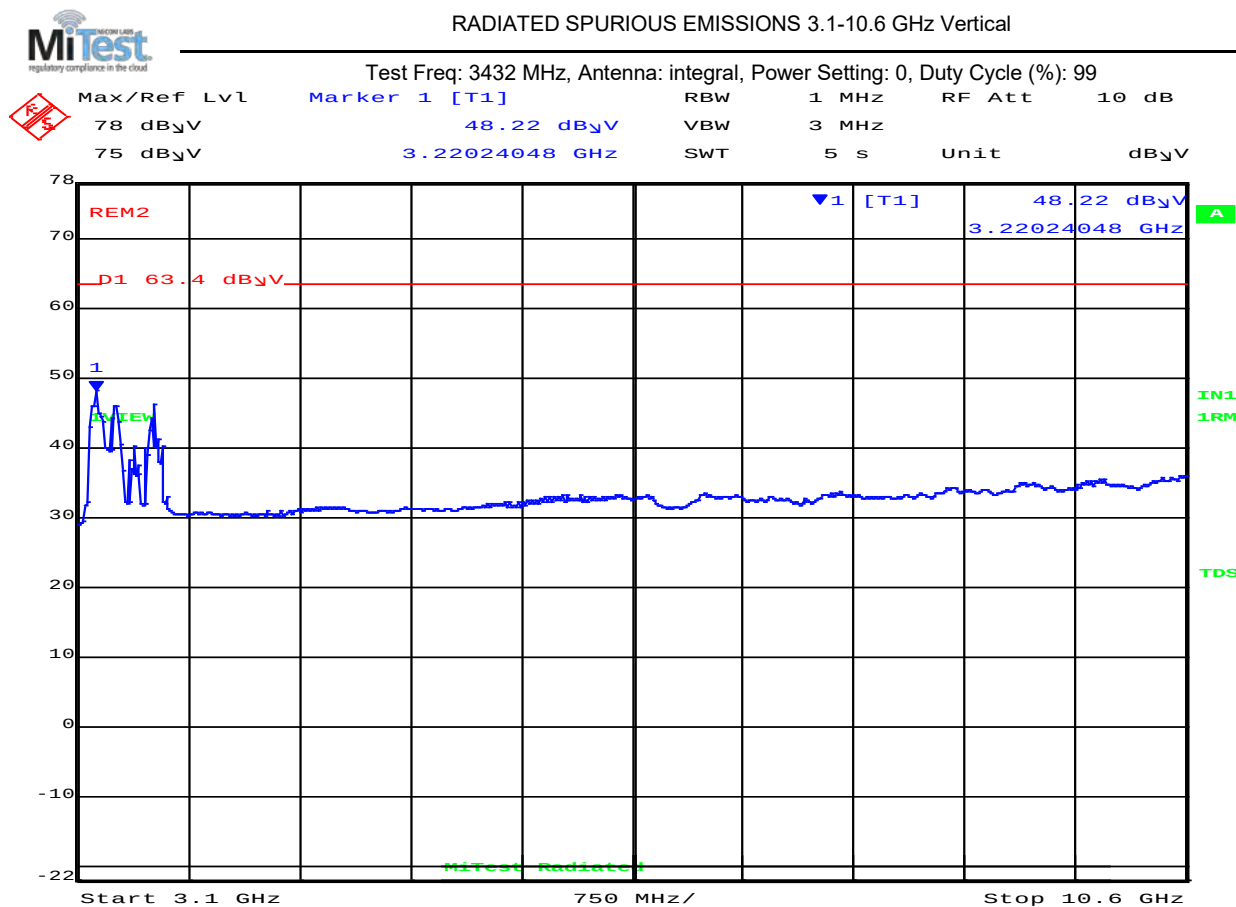


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 15:54:11

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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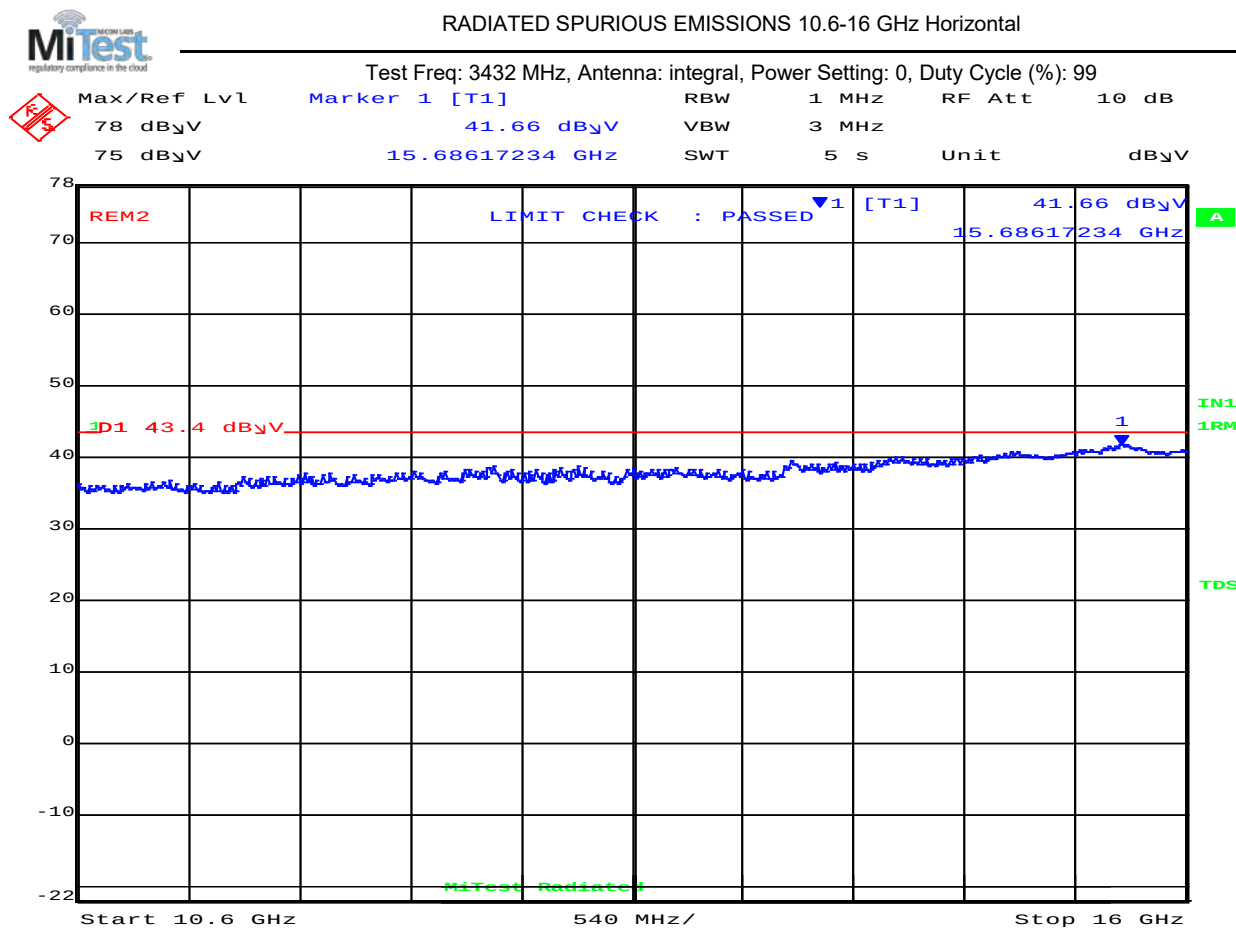


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

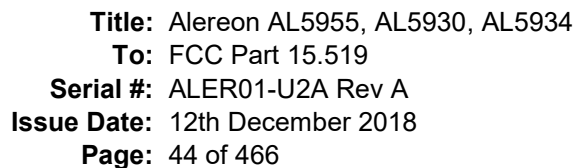
Test Measurement Results



Date: 6.NOV.2018 15:58:21

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	40.2	Average	Horizontal	150	0	43.4	-3.2	Pass
Test Notes:									

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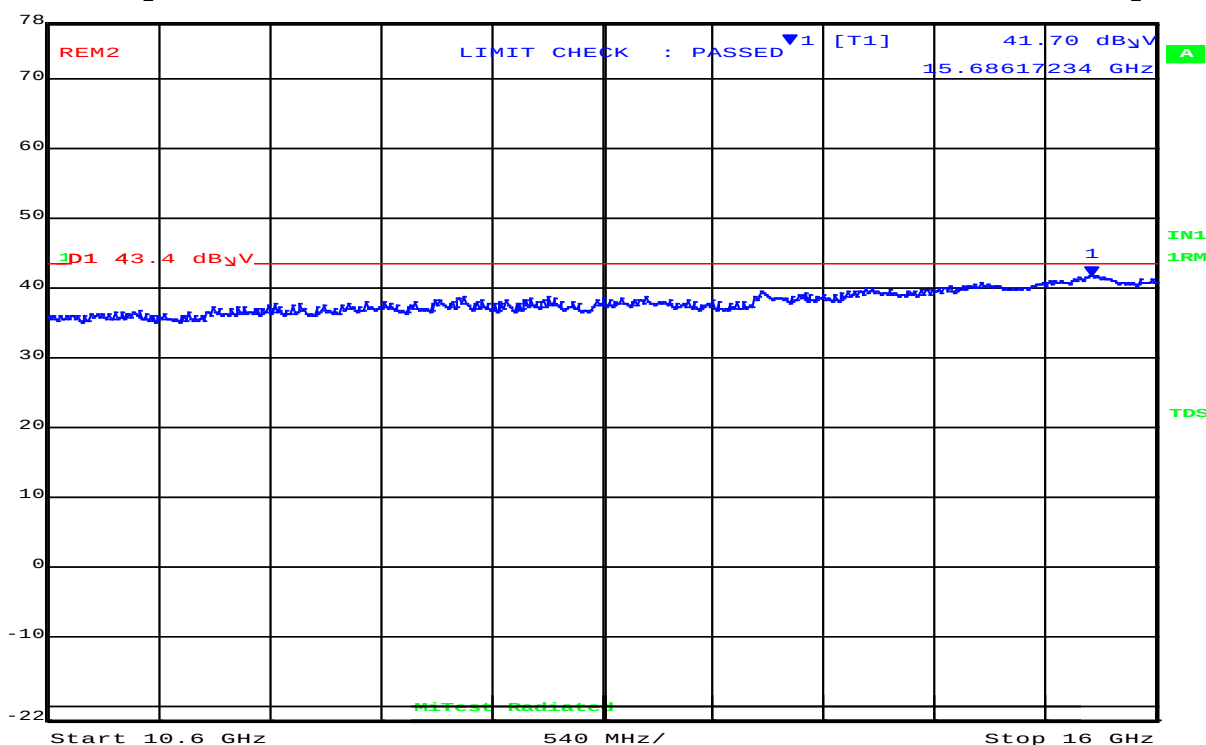


Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

MiTest
NICON LABS
regulatory compliance in the cloud

Test Freq: 3432 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99

	Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
	78 dB μ V	41.70 dB μ V	VBW	3 MHz		
	75 dB μ V	15.68617234 GHz	SWT	5 s	Unit	dB μ V



Date: 6.NOV.2018 15:56:07

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	41.3	Average	Vertical	150	0	43.4	-2.1	Pass

Test Notes:

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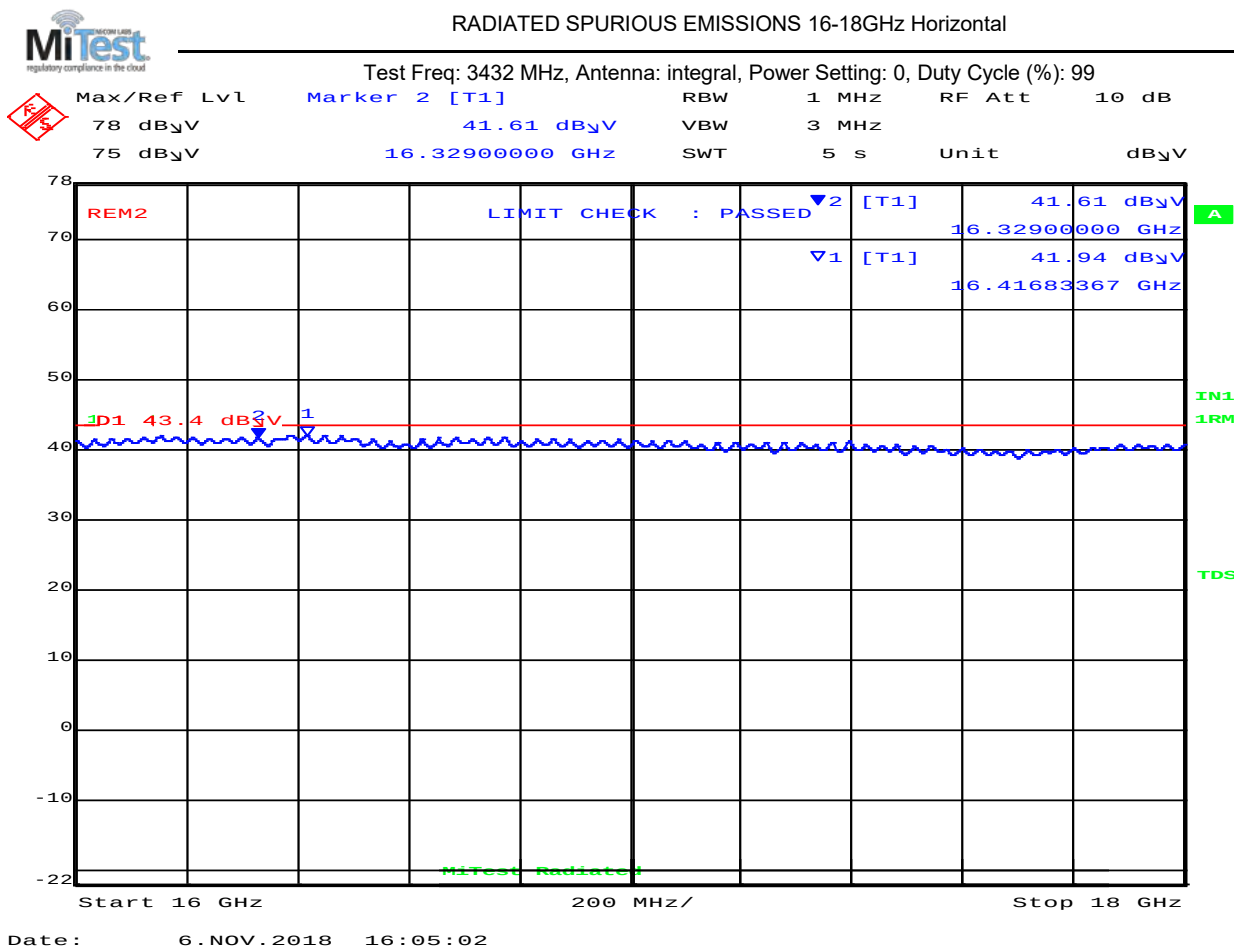


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16416.83	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass
2	16329.00	40.6	Average	Horizontal	150	0	43.4	-2.8	Pass

Test Notes:

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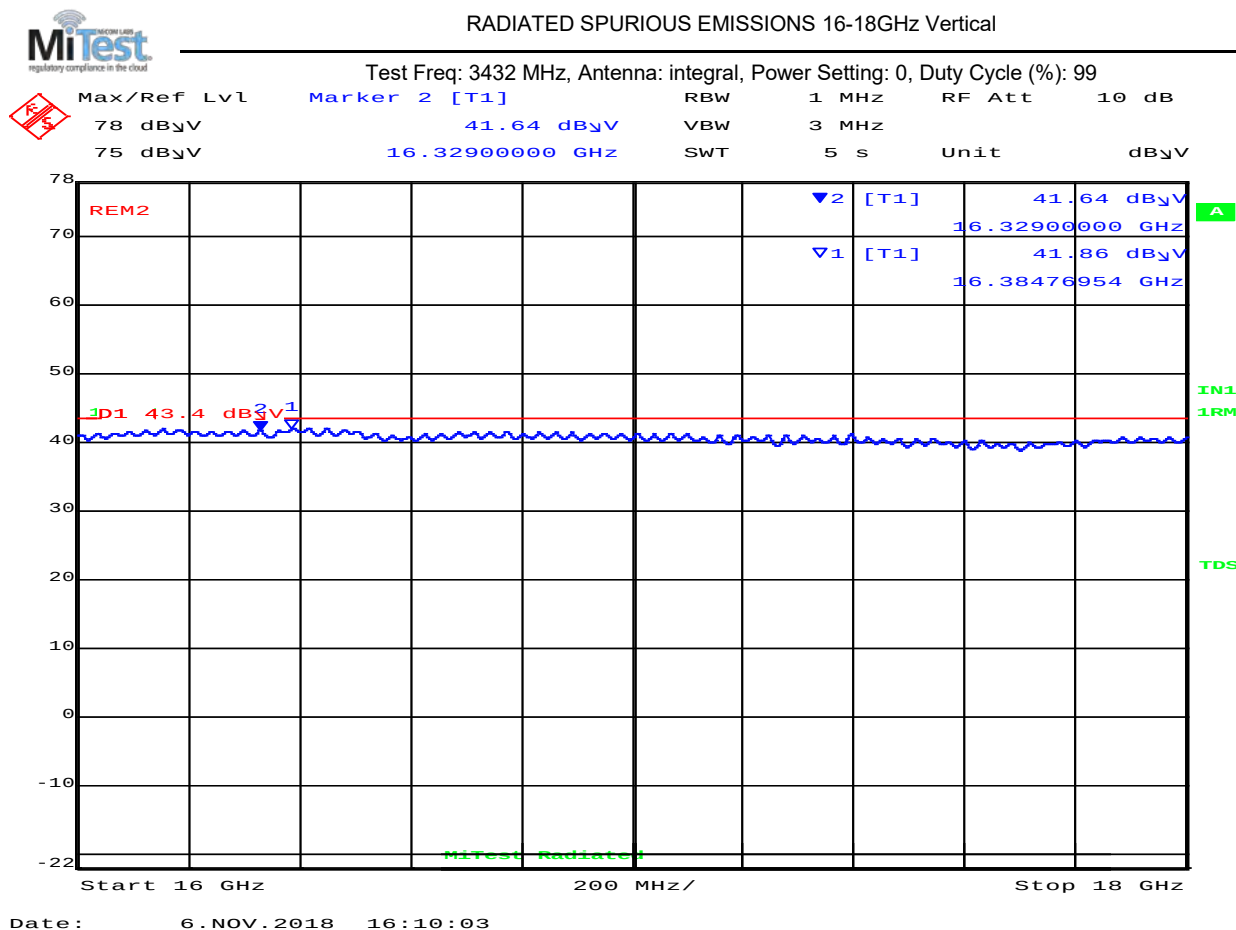


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16384.77	40.9	Average	Vertical	150	0	43.4	-2.5	Pass
2	16329.00	40.5	Average	Vertical	150	0	43.4	-2.9	Pass

Test Notes:

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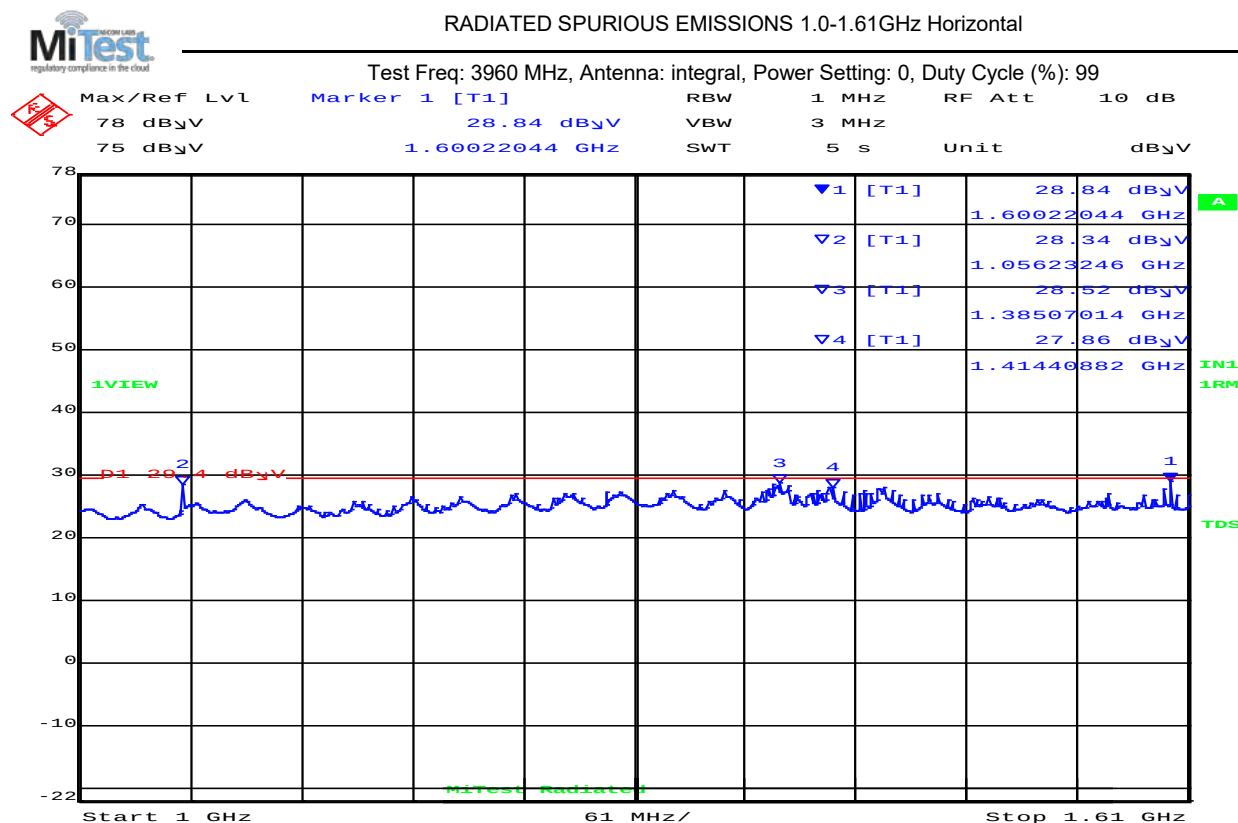
Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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3960 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 12:34:57

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1600.22*	28.10	Average	Horizontal	150	0	29.4	-1.3	Pass
2	1056.23*	28.5	Average	Horizontal	150	0	29.4	-0.9	Pass
3	1385.51*	27.1	Average	Horizontal	150	0	29.4	-2.3	Pass
3	1414.41*	27.0	Average	Horizontal	150	0	29.4	-2.4	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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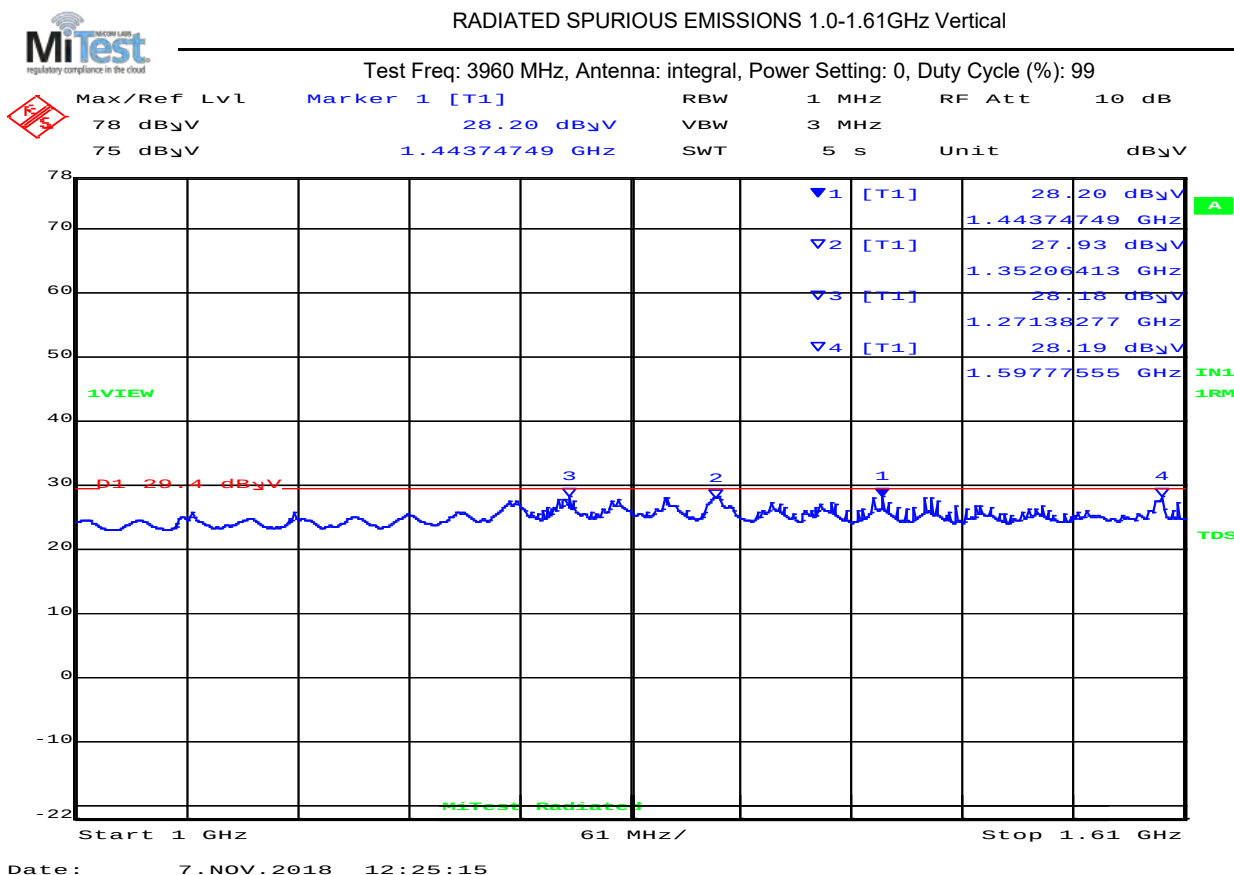


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To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1443.74*	27.5	Average	Vertical	150	0	29.4	-1.9	Pass
2	1352.06*	26.9	Average	Vertical	150	0	29.4	-2.5	Pass
3	1271.38*	26.2	Average	Vertical	150	0	29.4	-3.2	Pass
4	1597.77*	27.1	Average	Vertical	150	0	29.4	-2.3	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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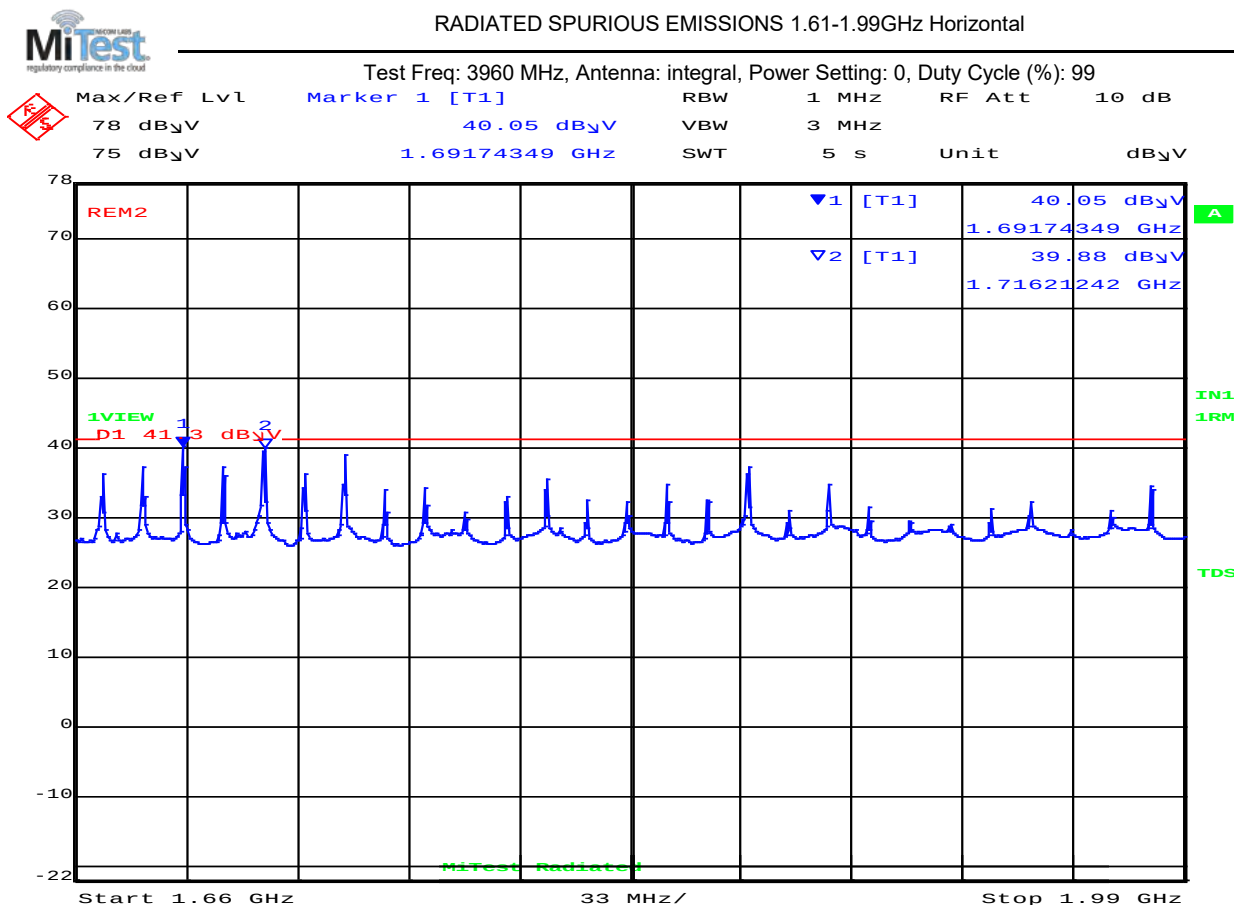


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:46:44

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1691.74*	38.7	Average	Horizontal	150	0	41.4	-2.7	Pass
2	1716.21*	39.2	Average	Horizontal	150	0	41.4	-2.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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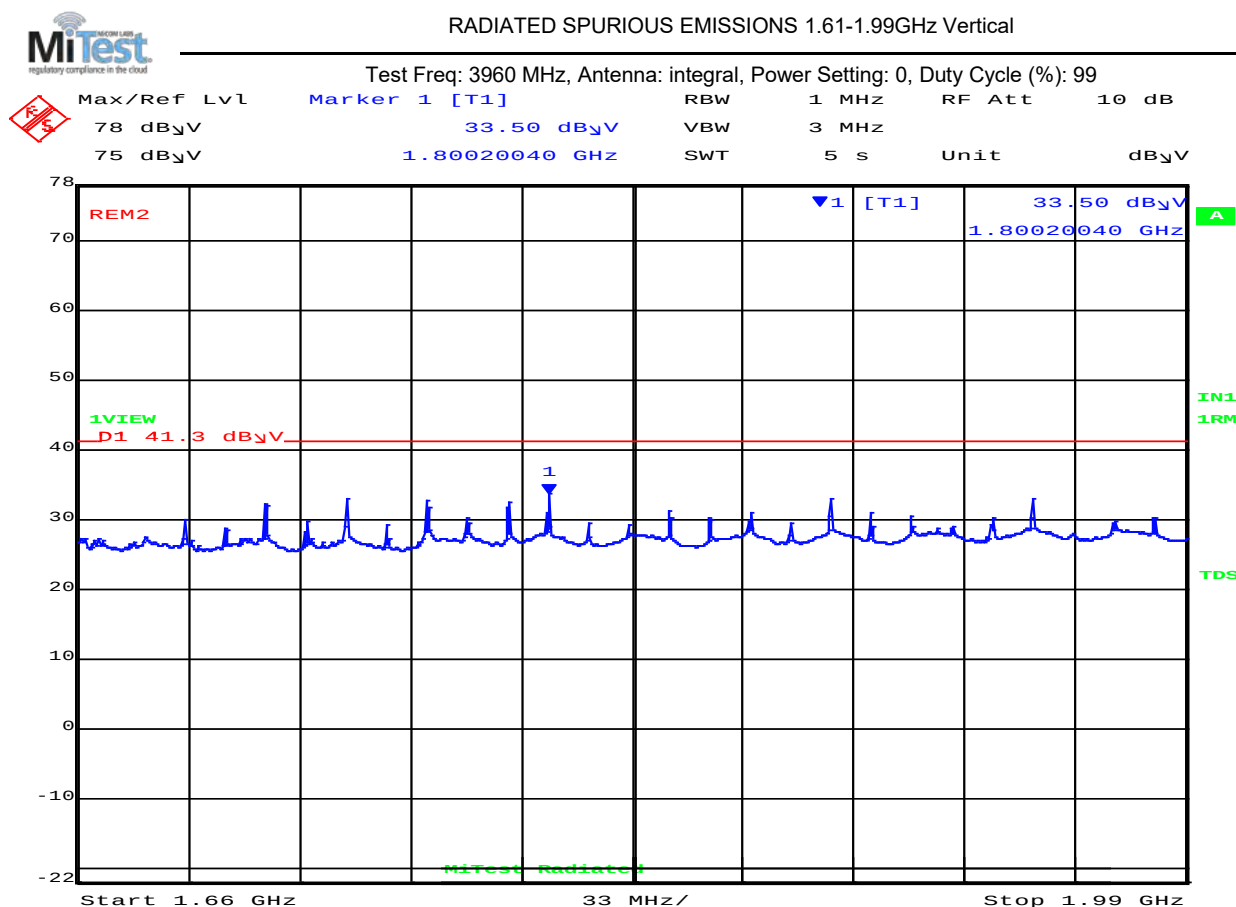


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:47:46

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes: Source Laptop and UART to serial converter cable									

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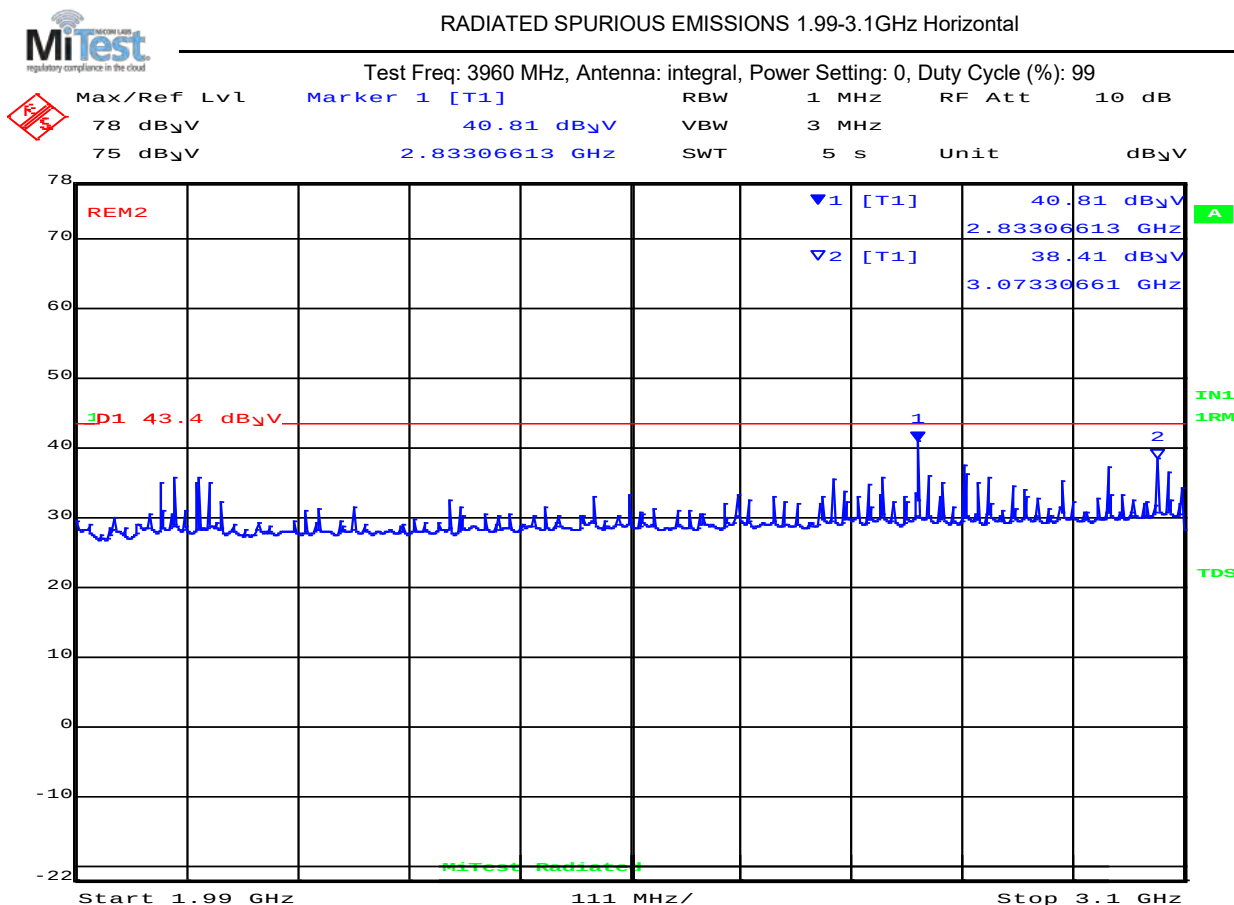


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 16:47:37

1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	2833.06*	40.8	Average	Horizontal	150	0	43.4	-2.6	Pass
2	3073.31*	38.2	Average	Horizontal	150	0	43.4	-5.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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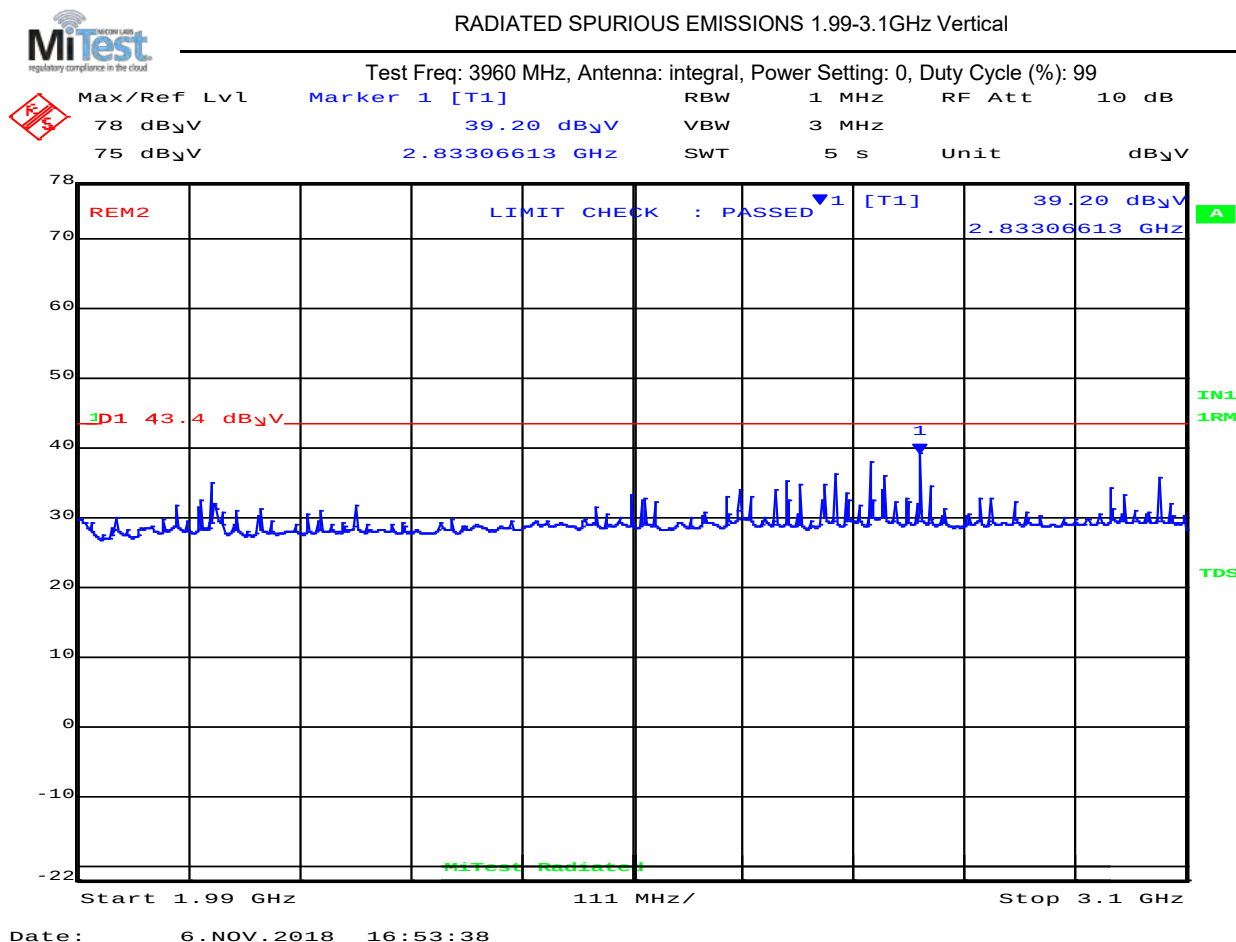


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.06*	39.2	Average	Vertical	150	0	43.4	-4.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

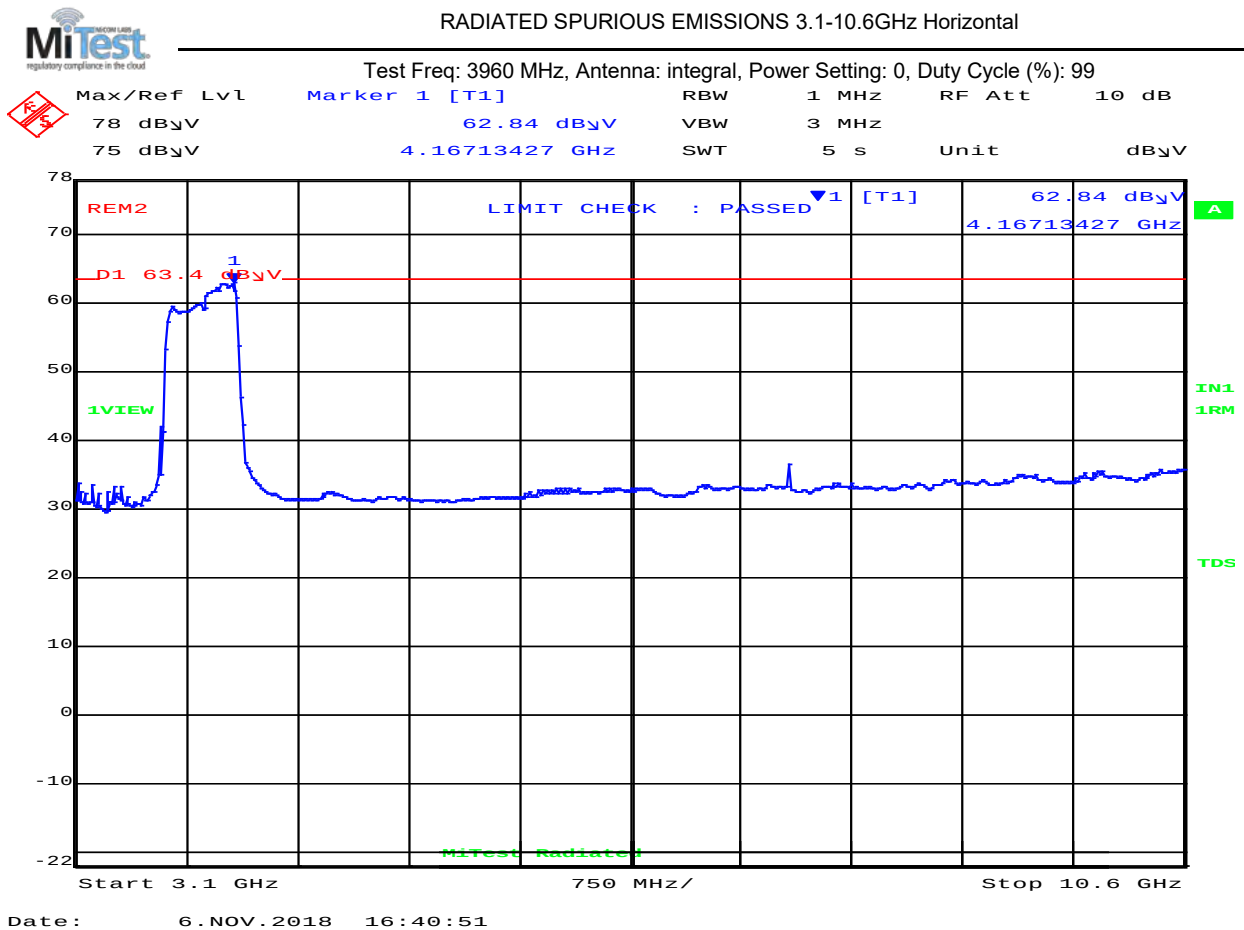


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	4167.13	62.0	Average	Horizontal	150	0	63.4	-1.4	Pass

Test Notes:

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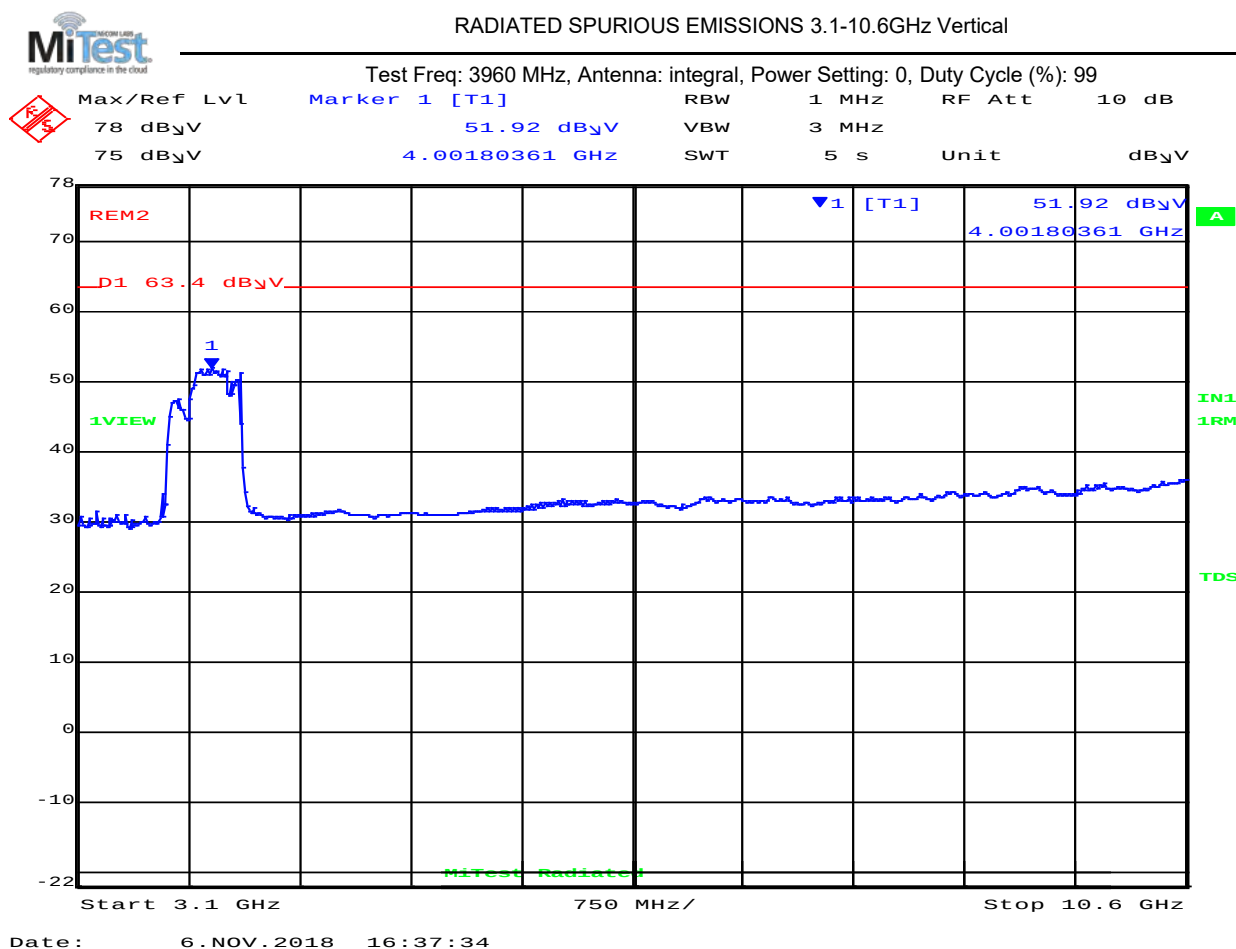


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

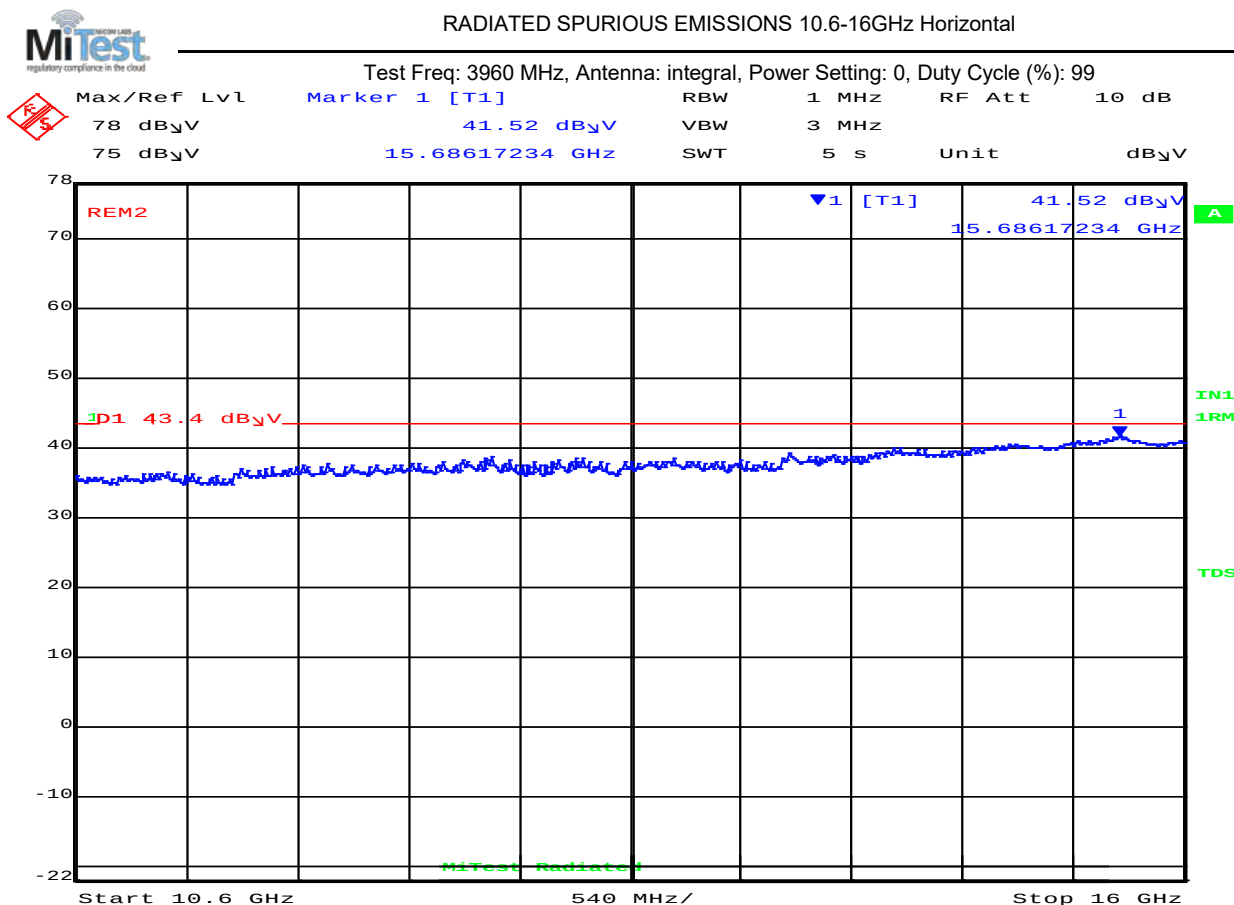


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 16:32:39

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	39.9	Average	Horizontal	150	0	29.4	-3.5	Pass

Test Notes:

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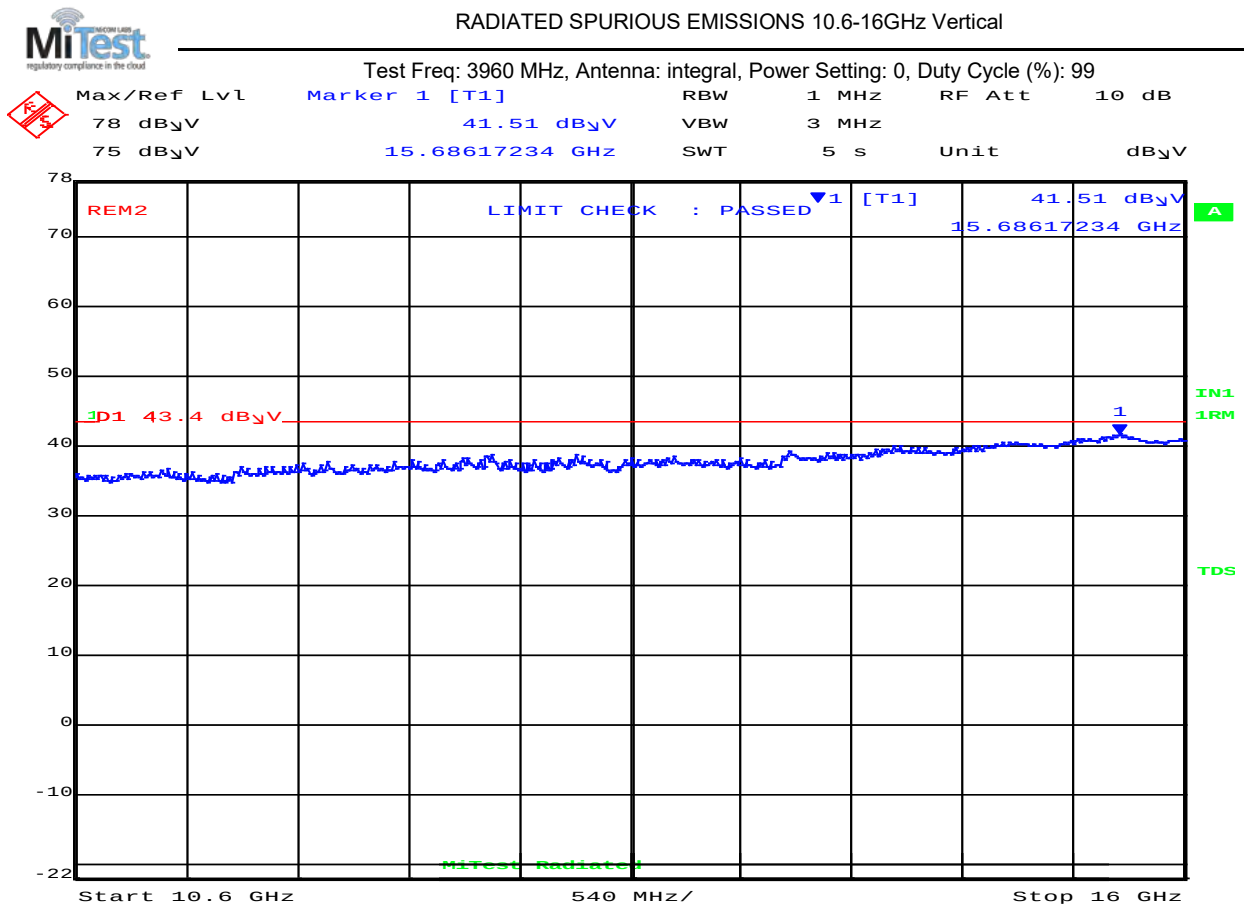


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 16:34:37

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	39.9	Average	Vertical	150	0	43.4	-3.5	Pass

Test Notes:

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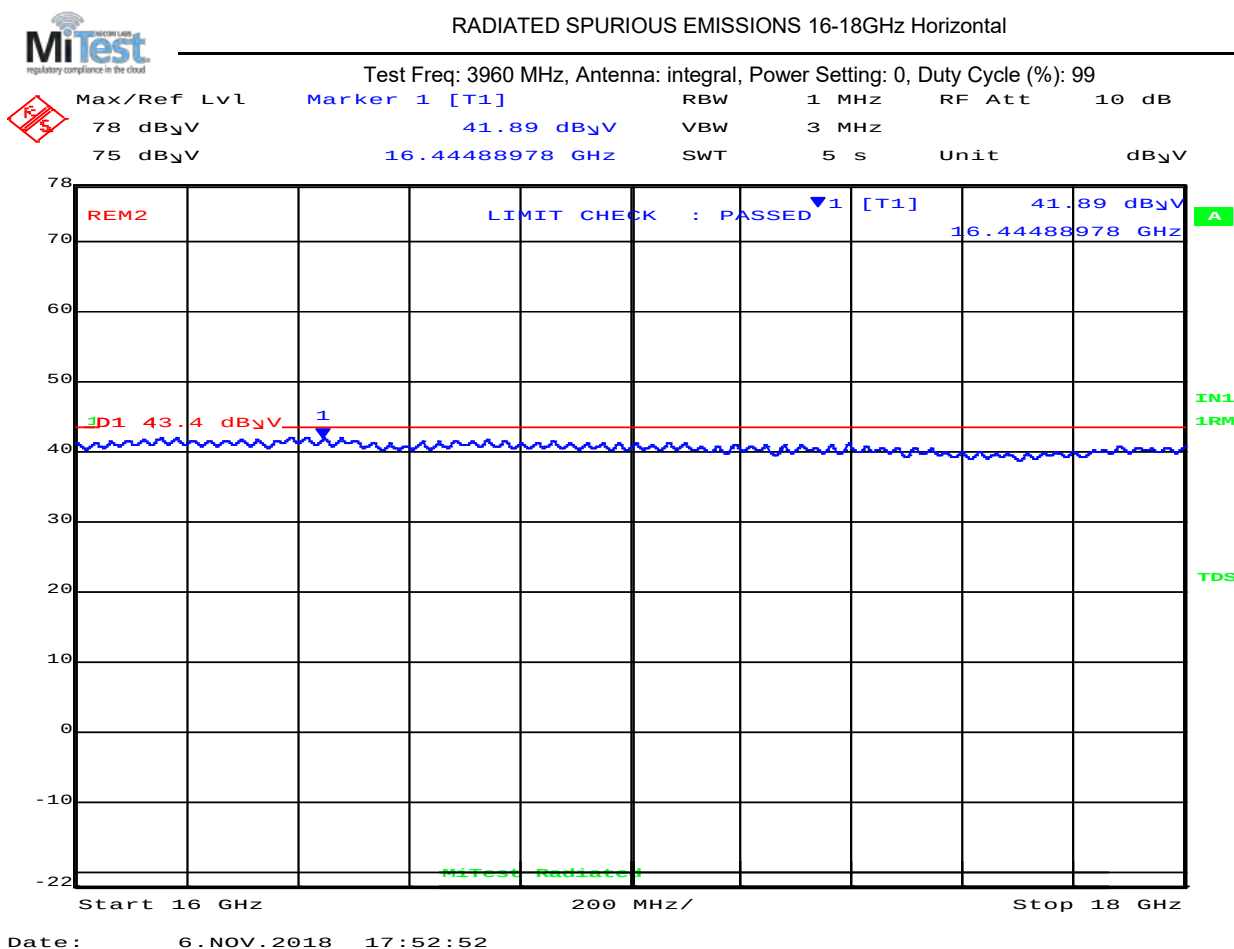


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.8	Average	Horizontal	150	0	43.4	-2.6	Pass
Test Notes:									

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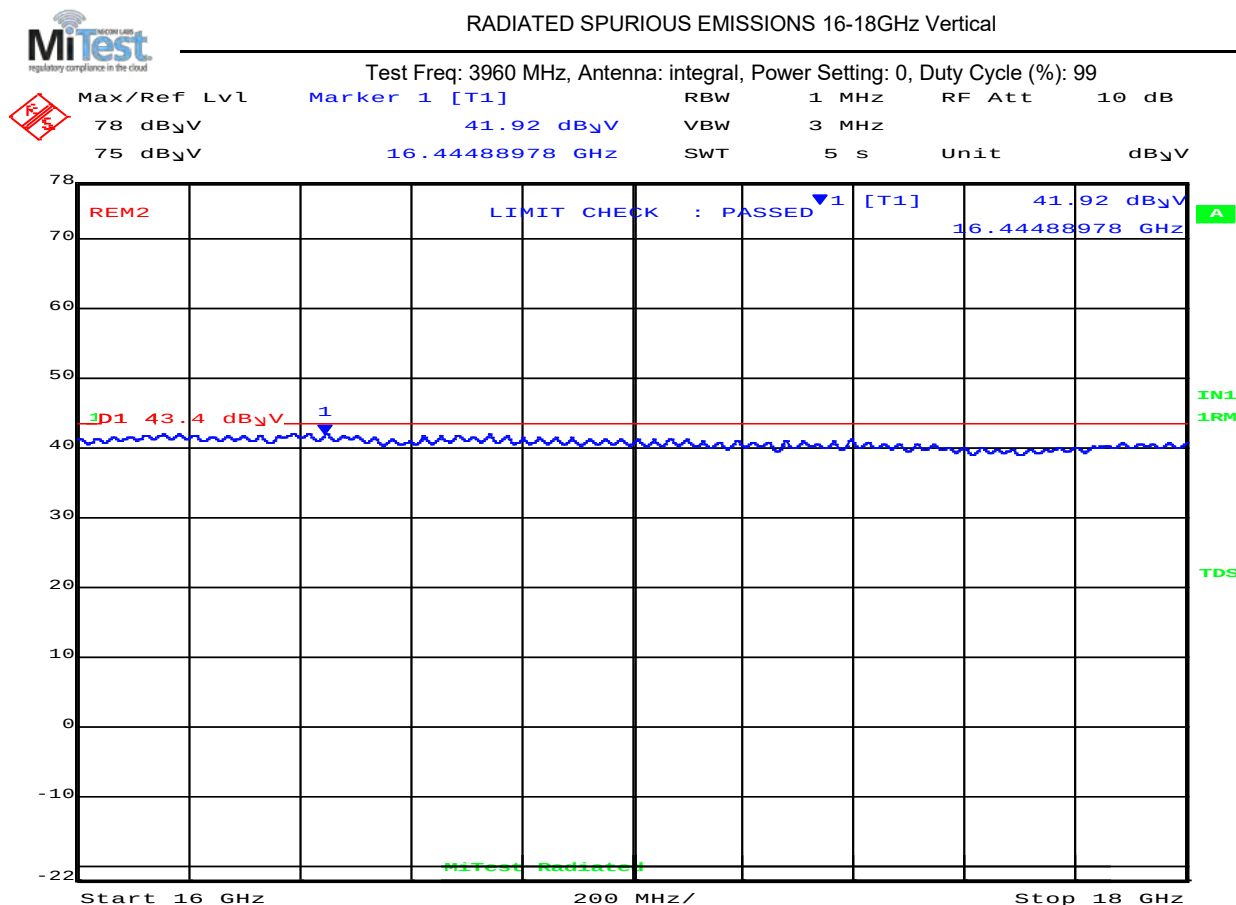


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:52:13

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.8	Average	Vertical	150	0	43.4	-2.6	Pass

Test Notes:

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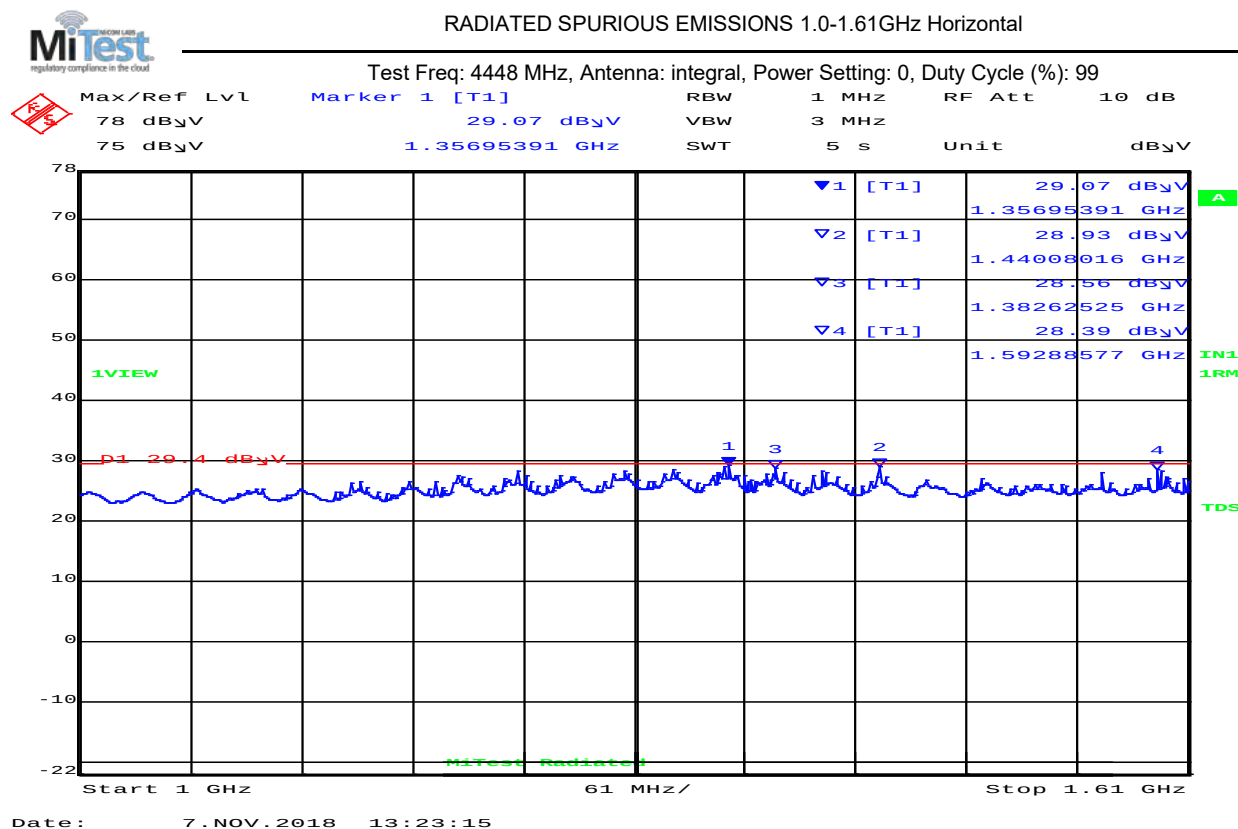
Title: Alereon AL5955, AL5930, AL5934
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4488 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 13:23:15

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1356.95*	27.7	Average	Horizontal	150	0	29.4	-1.7	Pass
2	1440.08	28.3	Average	Horizontal	150	0	29.4	-1.1	Pass
3	1382.62*	28.0	Average	Horizontal	150	0	29.4	-1.4	Pass
4	1592.89*	27.9	Average	Horizontal	150	0	29.4	-1.5	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

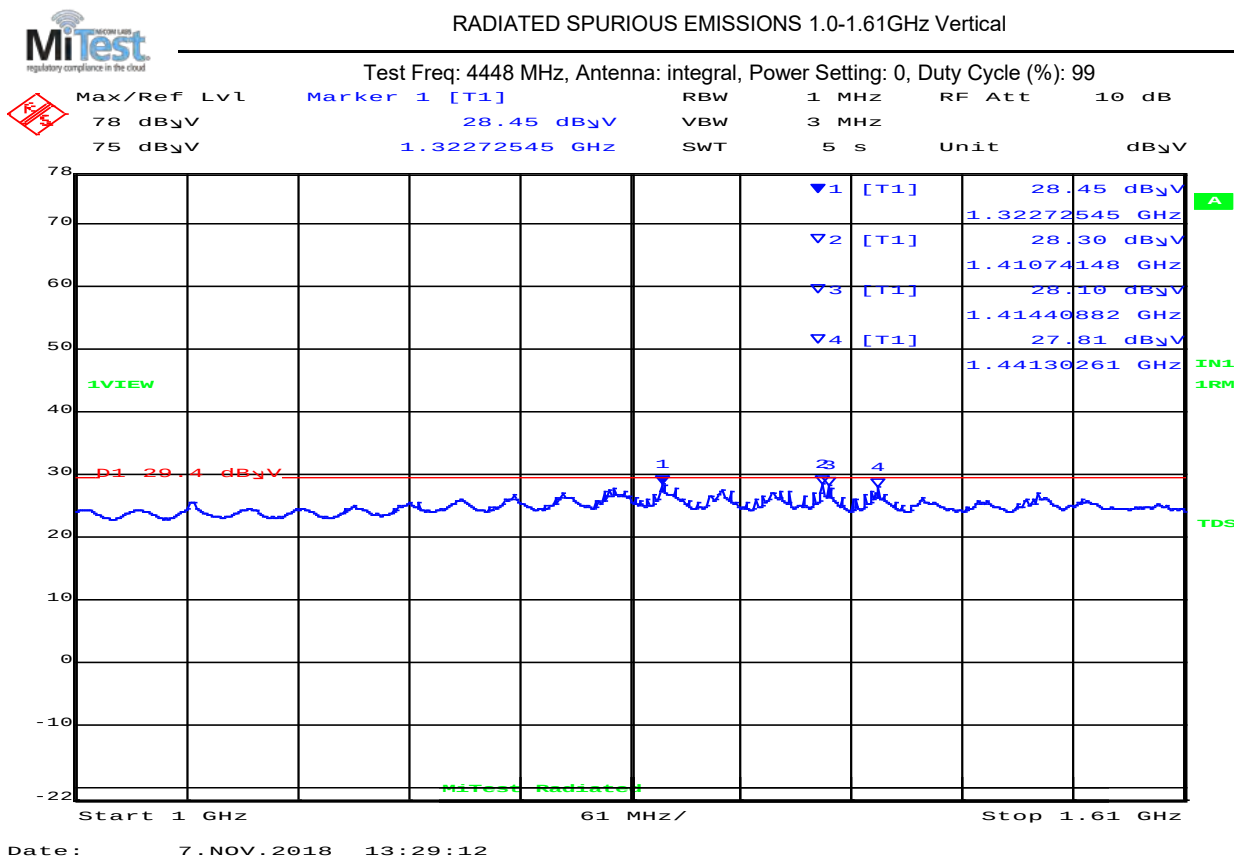


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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1322.72*	27.1	Average	Vertical	150	0	29.4	-2.3	Pass
2	1410.74*	28.0	Average	Vertical	150	0	29.4	-1.4	Pass
3	1414.41*	27.9	Average	Vertical	150	0	29.4	-1.5	Pass
4	1441.30*	26.9	Average	Vertical	150	0	29.4	-2.5	Pass

Test Notes:
Source Laptop and UART to serial converter cable

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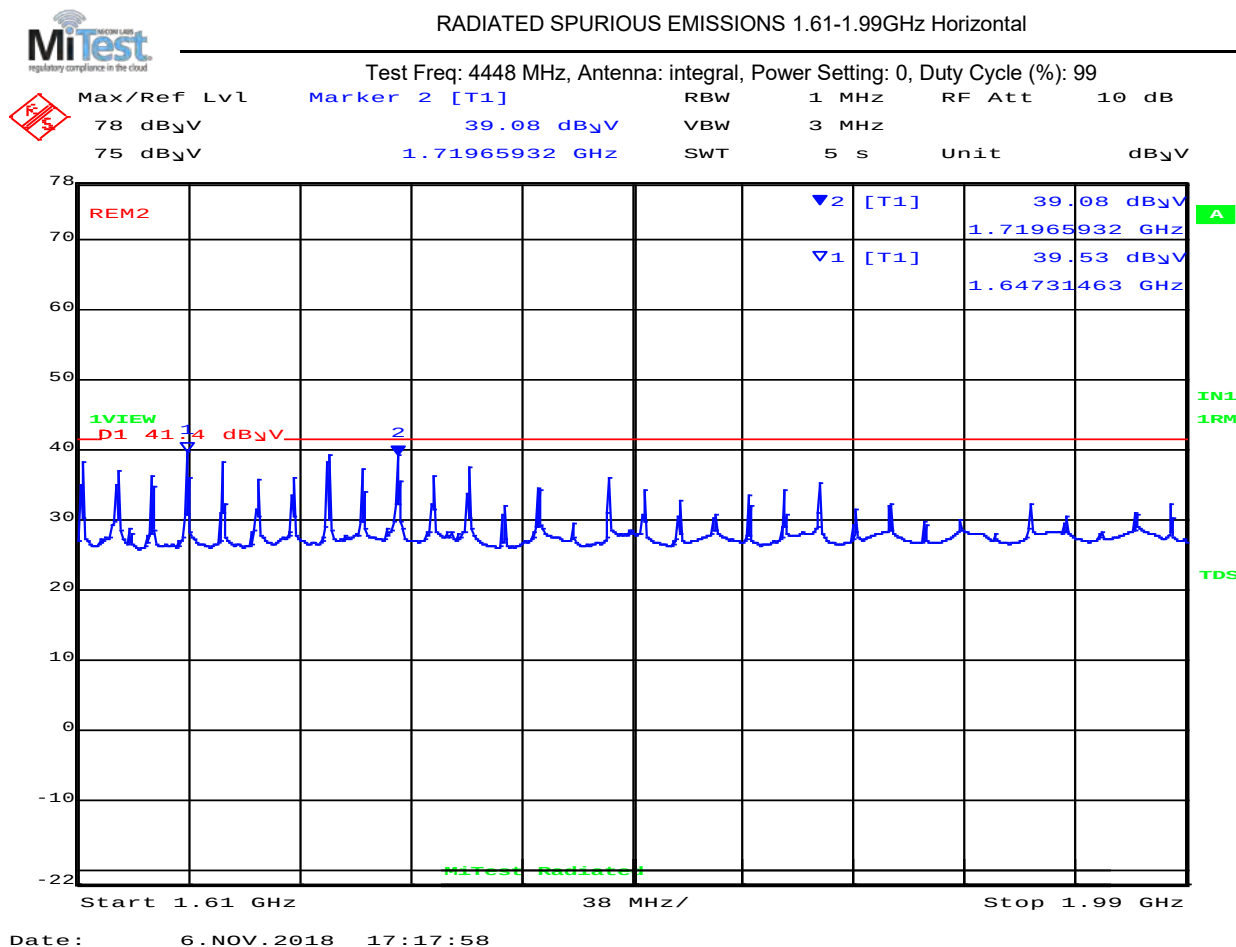


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1647.31*	37.2	Average	Horizontal	150	0	41.4	-4.2	Pass
2	1719.66*	38.6	Average	Horizontal	150	0	41.4	-2.8	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

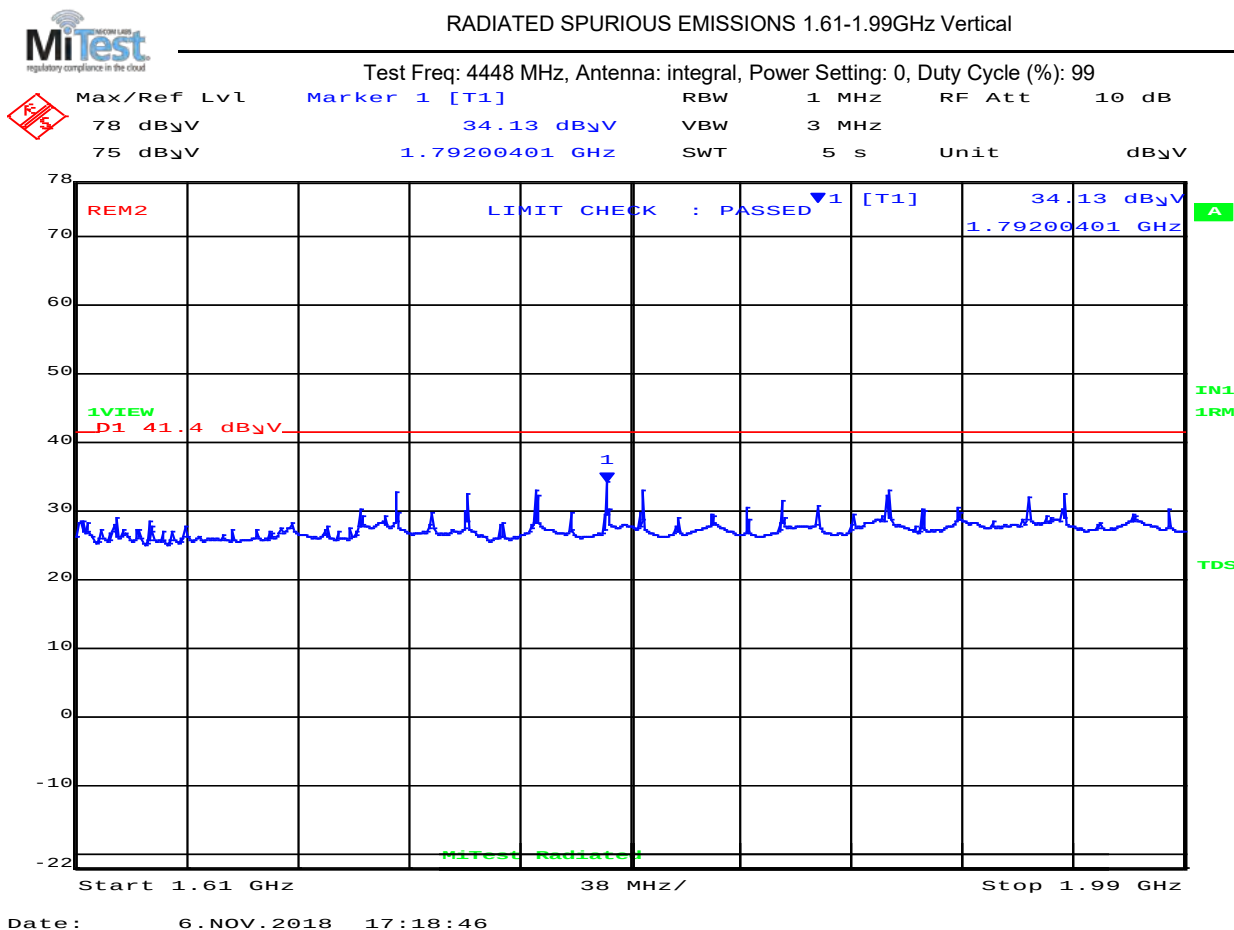


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

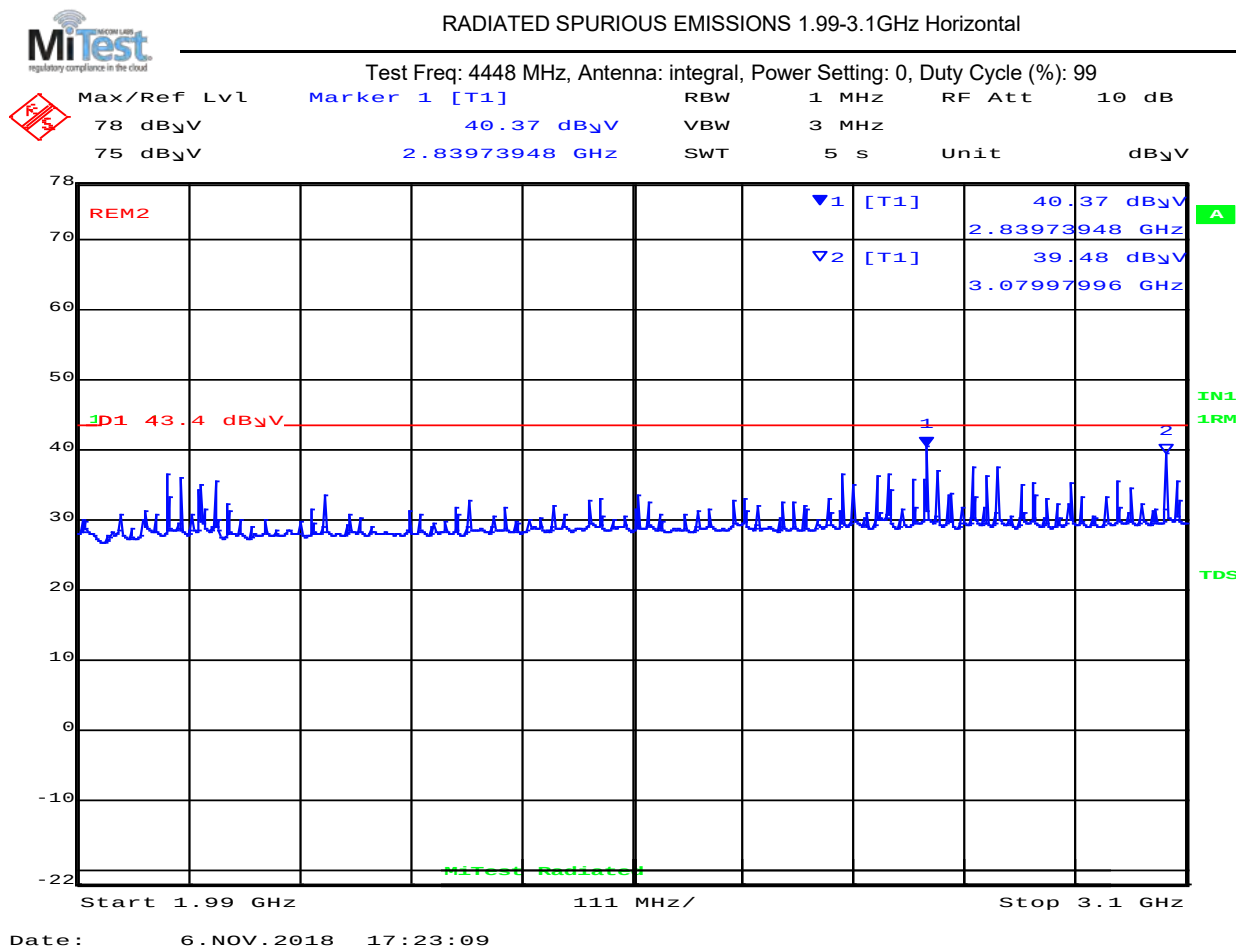


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	2839.74*	41.7	Average	Horizontal	150	0	43.4	-1.7	Pass
2	3079.98*	40.3	Average	Horizontal	150	0	43.4	-3.1	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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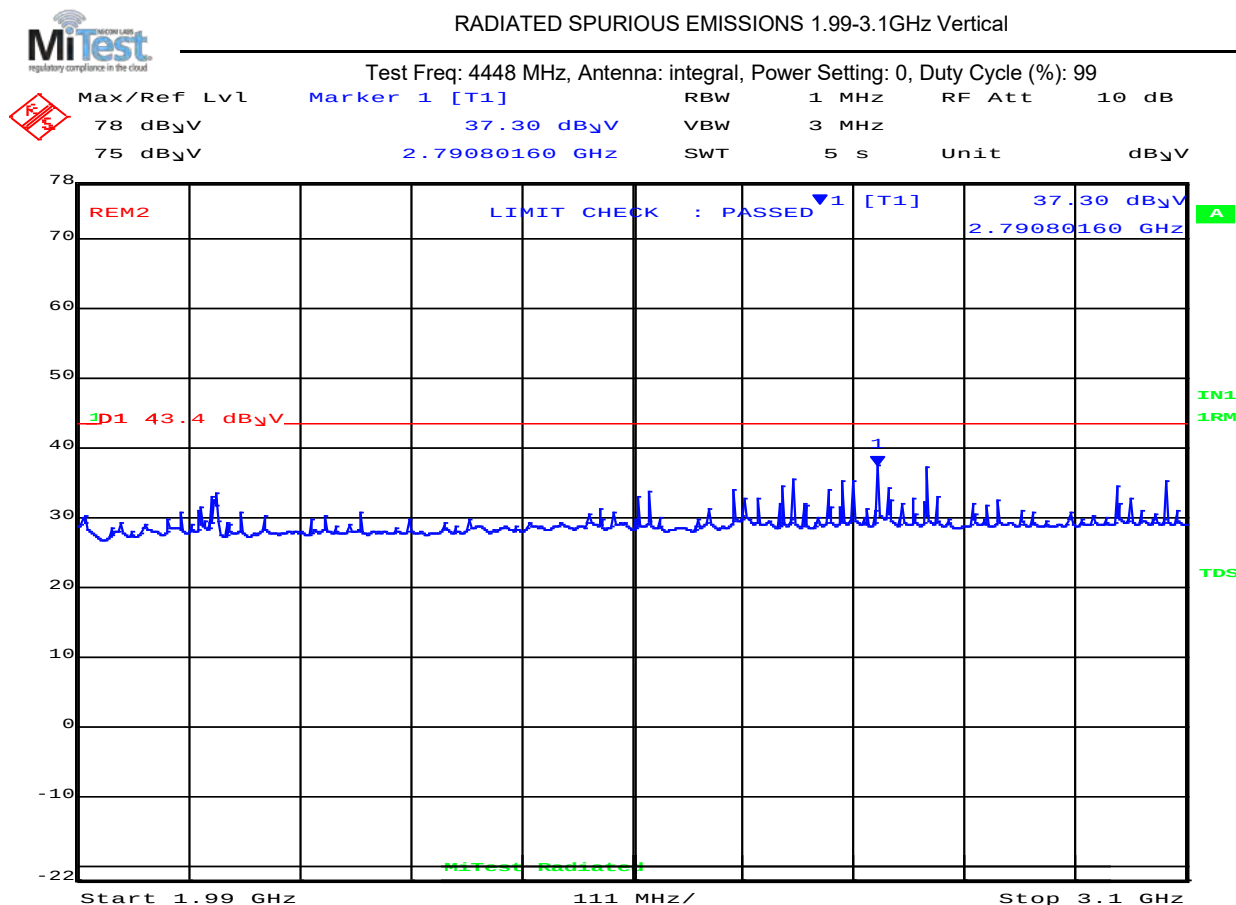


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:27:11

1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	2790.80*	37.3	Average	Vertical	150	0	29.4	-2.1	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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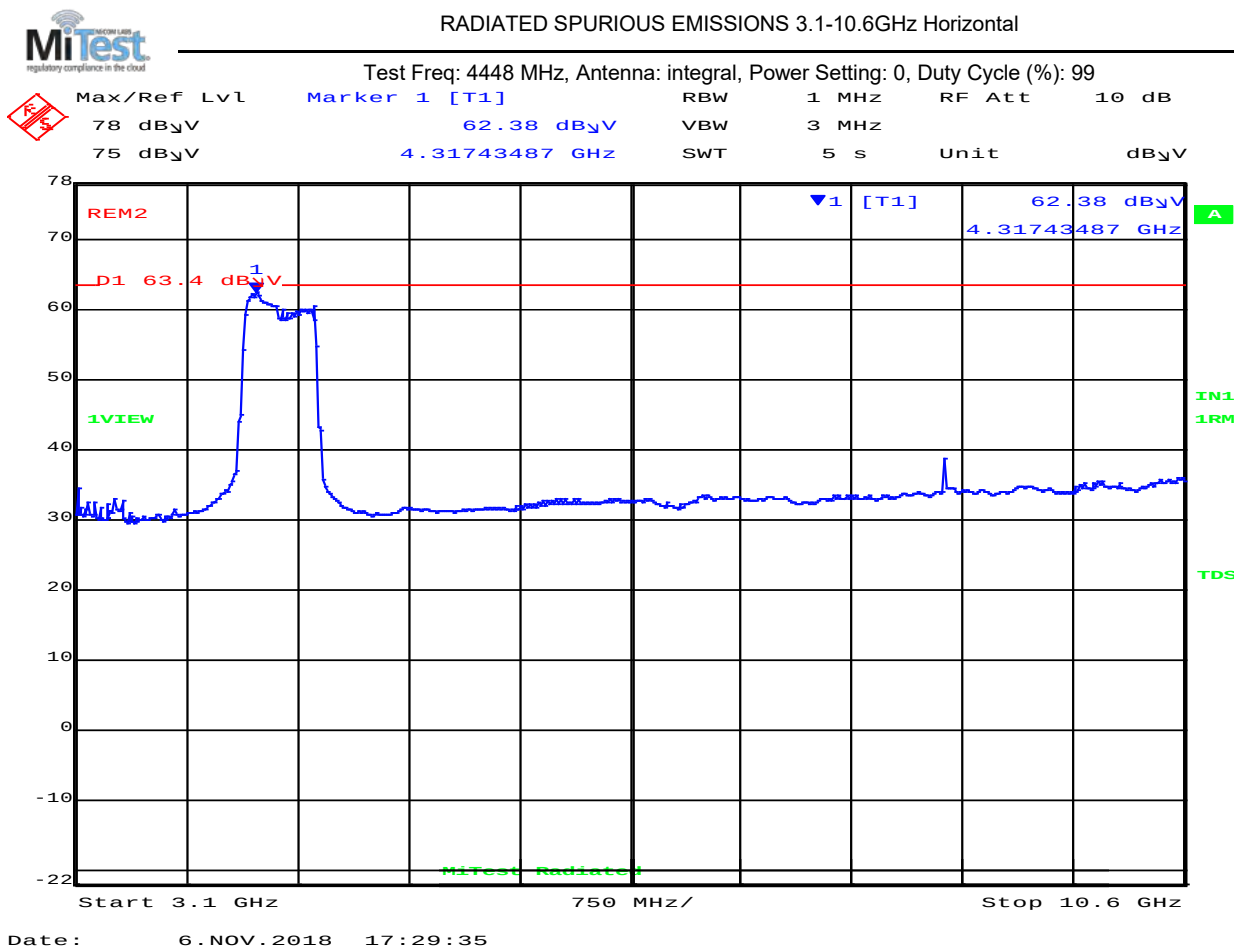


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	4317.43	61.2	Average	Horizontal	150	0	63.4	-2.2	Pass

Test Notes:

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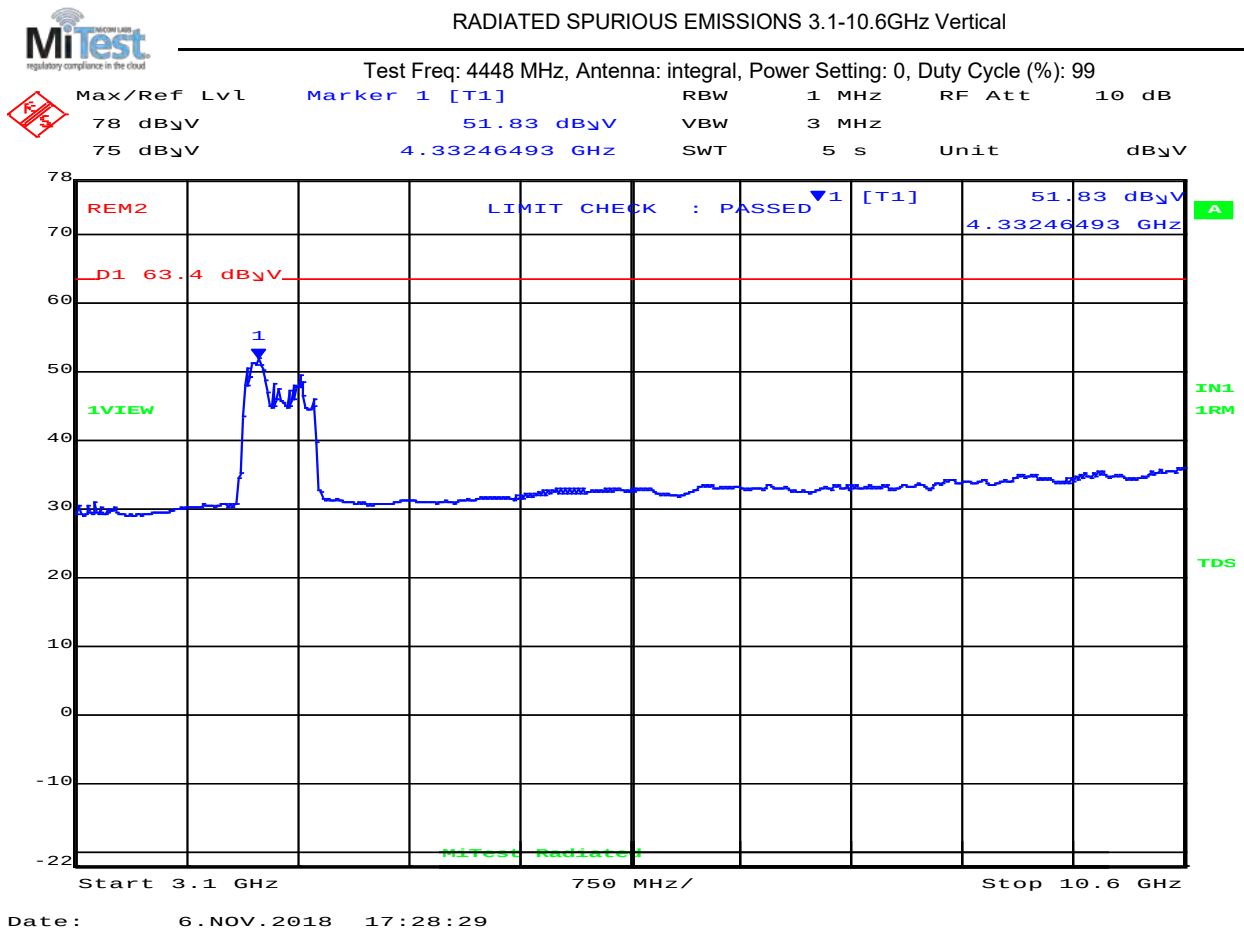


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

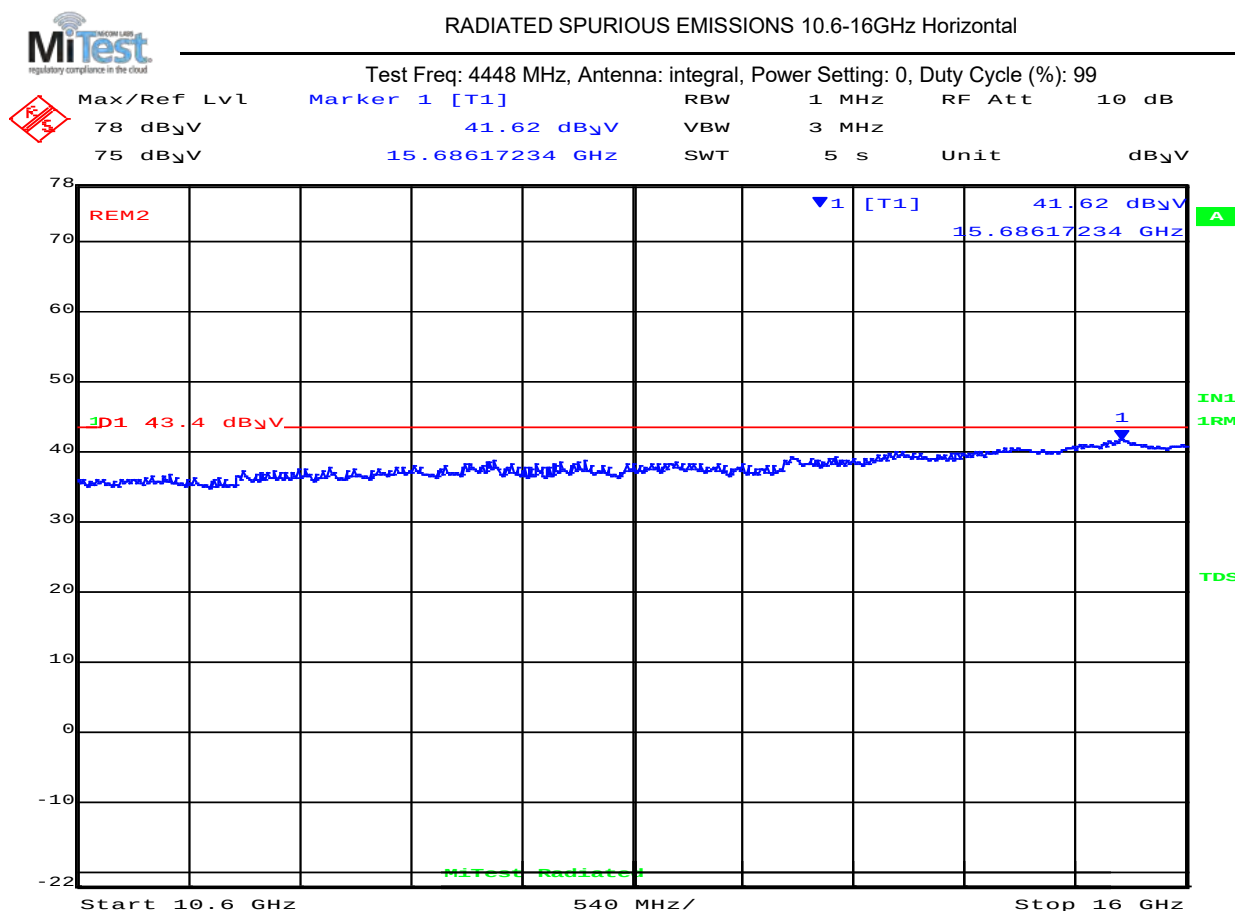


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:32:41

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.3	Average	Horizontal	150	0	43.4	-3.1	Pass
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

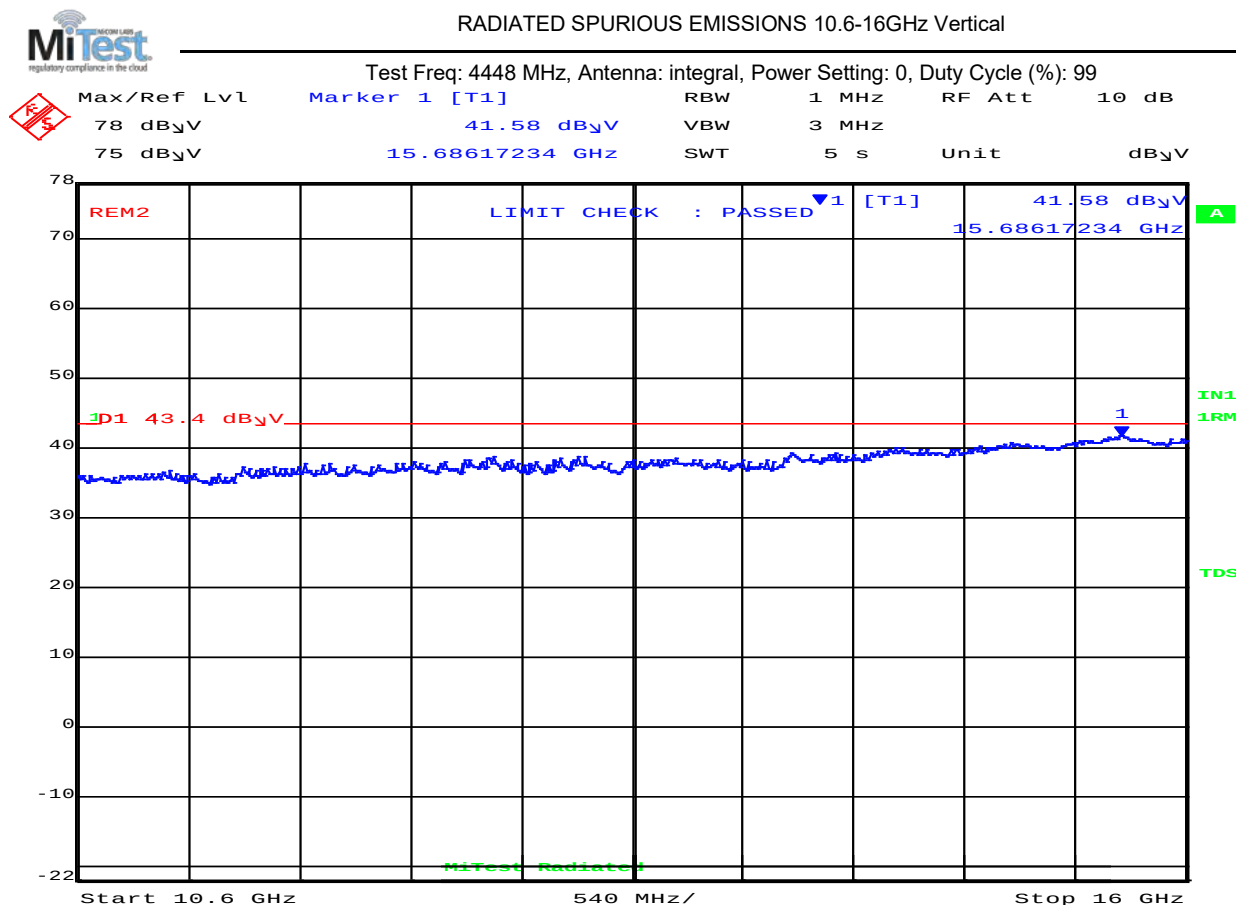


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 17:34:47

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.3	Average	Vertical	150	0	43.4	-3.1	Pass

Test Notes:

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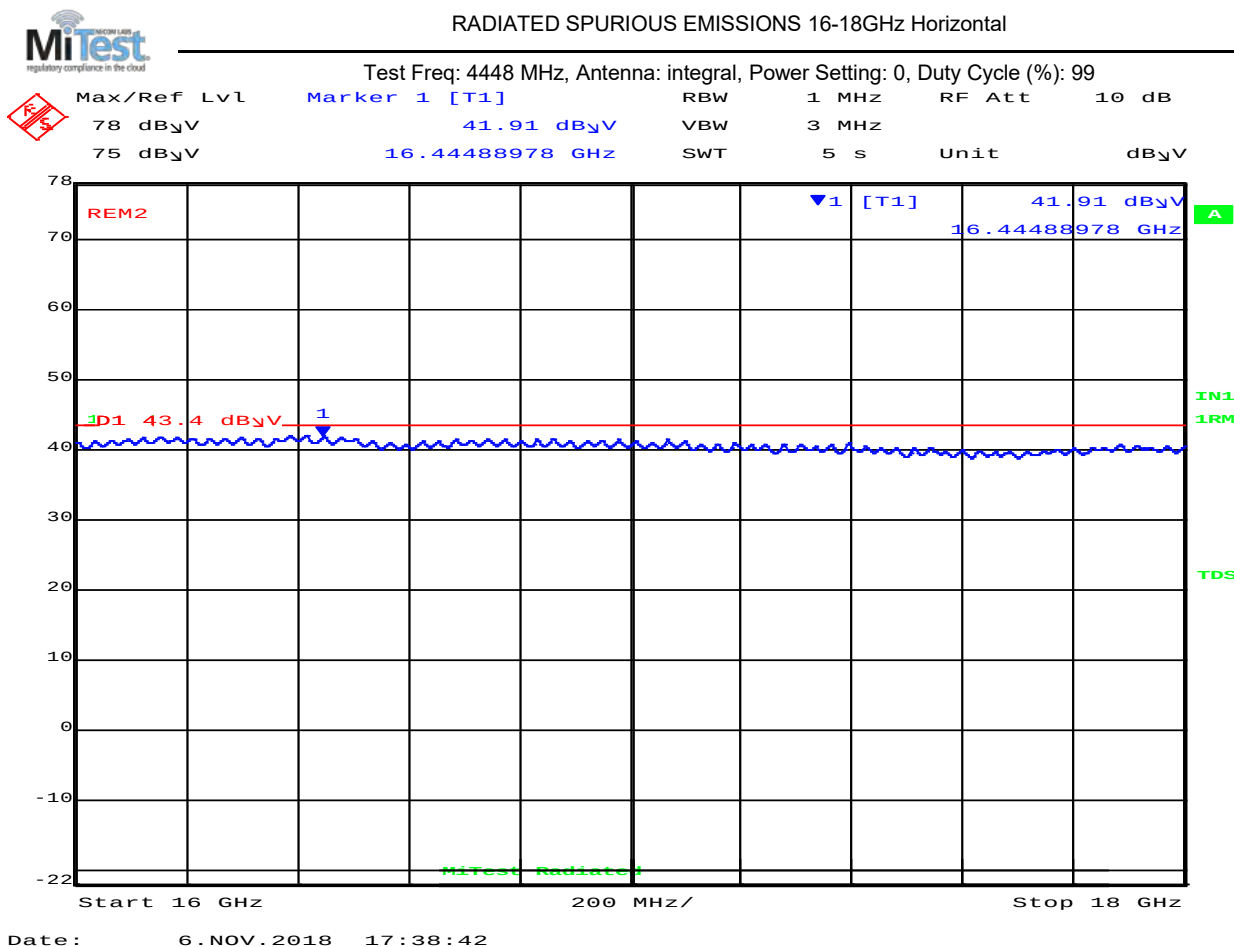


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass
Test Notes:									

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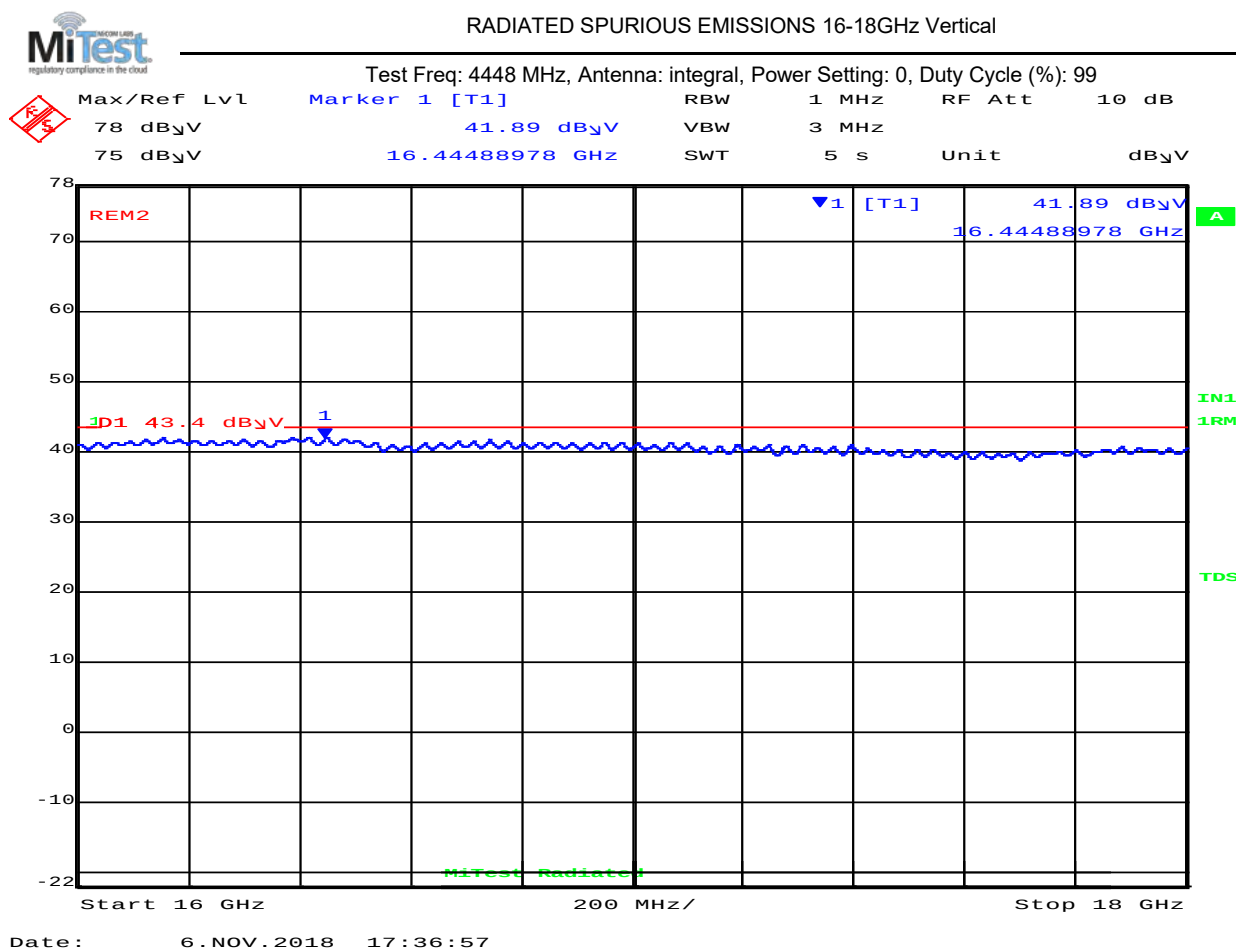


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Vertical	150	0	43.4	-2.5	Pass

Test Notes:

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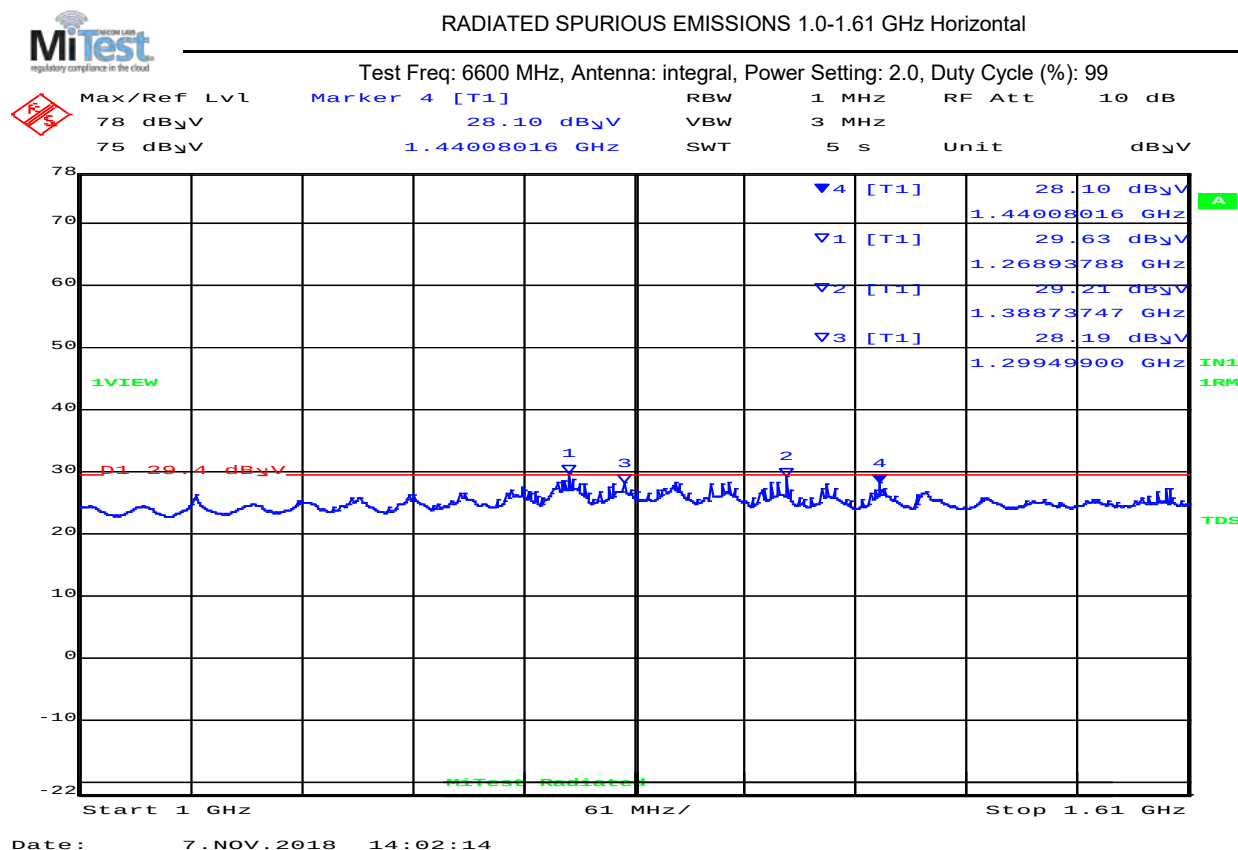
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6600 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 14:02:14

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1268.94*	28.5	Average	Horizontal	150	0	29.4	-0.9	Pass
2	1388.74*	27.5	Average	Horizontal	150	0	29.4	-1.9	Pass
3	1299.50*	27.9	Average	Horizontal	150	0	29.4	-1.5	Pass
4	1440.08	28.1	Average	Horizontal	150	0	29.4	-1.3	Pass

Test Notes:
Source Laptop and UART to serial converter cable

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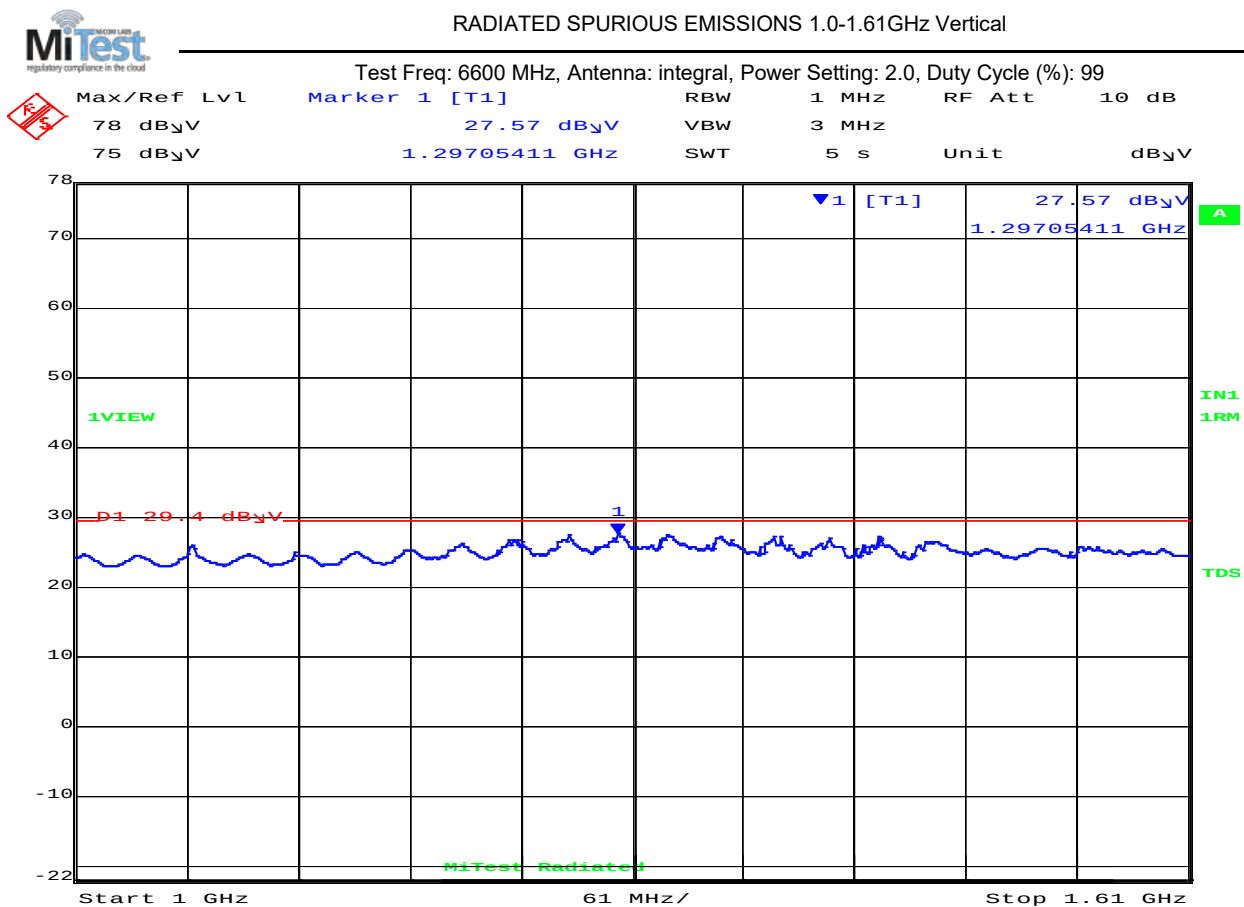


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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 13:58:21

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1297.05	26.8	Average	Vertical	150	0	29.4	-2.6	Pass

Test Notes:

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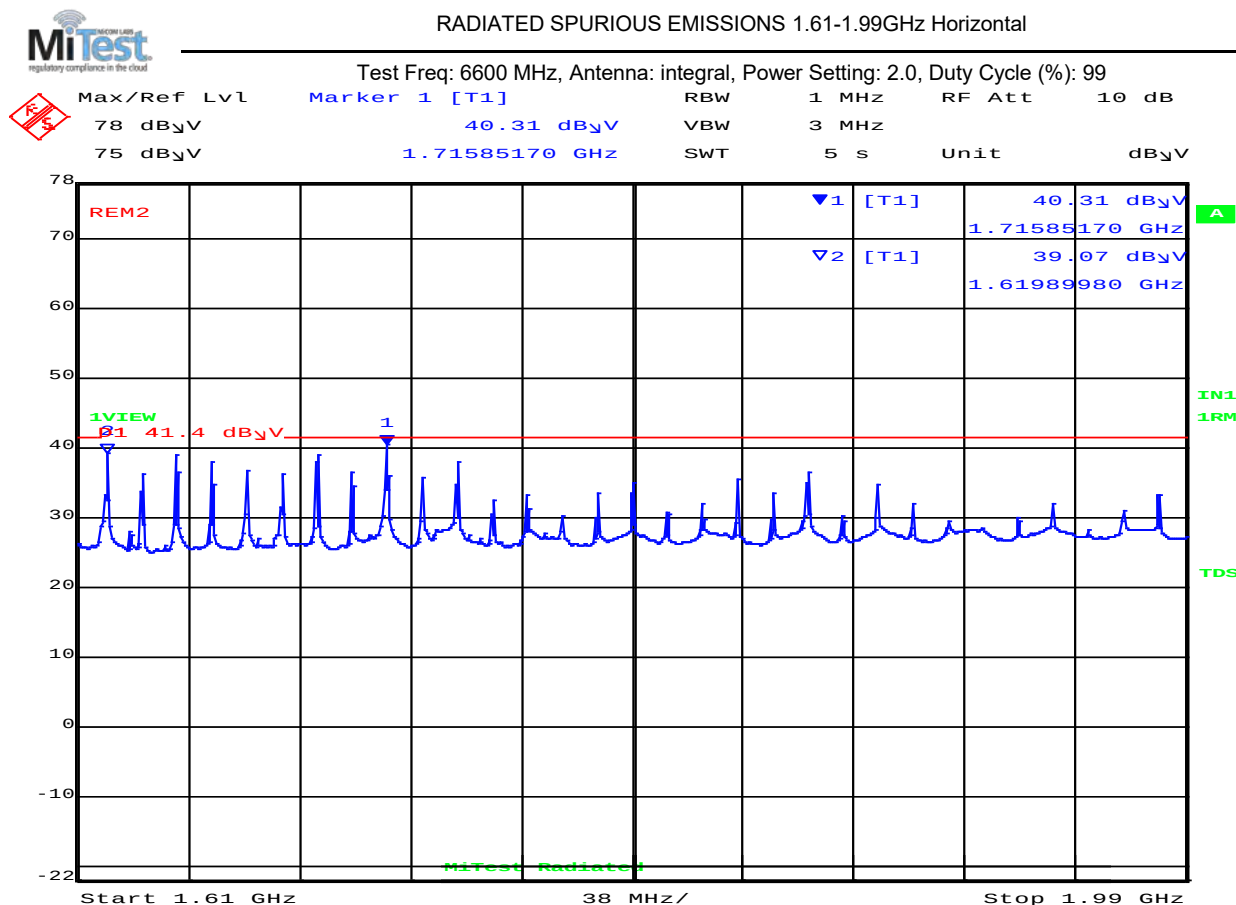


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:43:25

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1715.85*	40.1	Average	Horizontal	150	0	41.4	-1.3	Pass
2	1619.90*	39.1	Average	Horizontal	150	0	41.4	-2.3	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

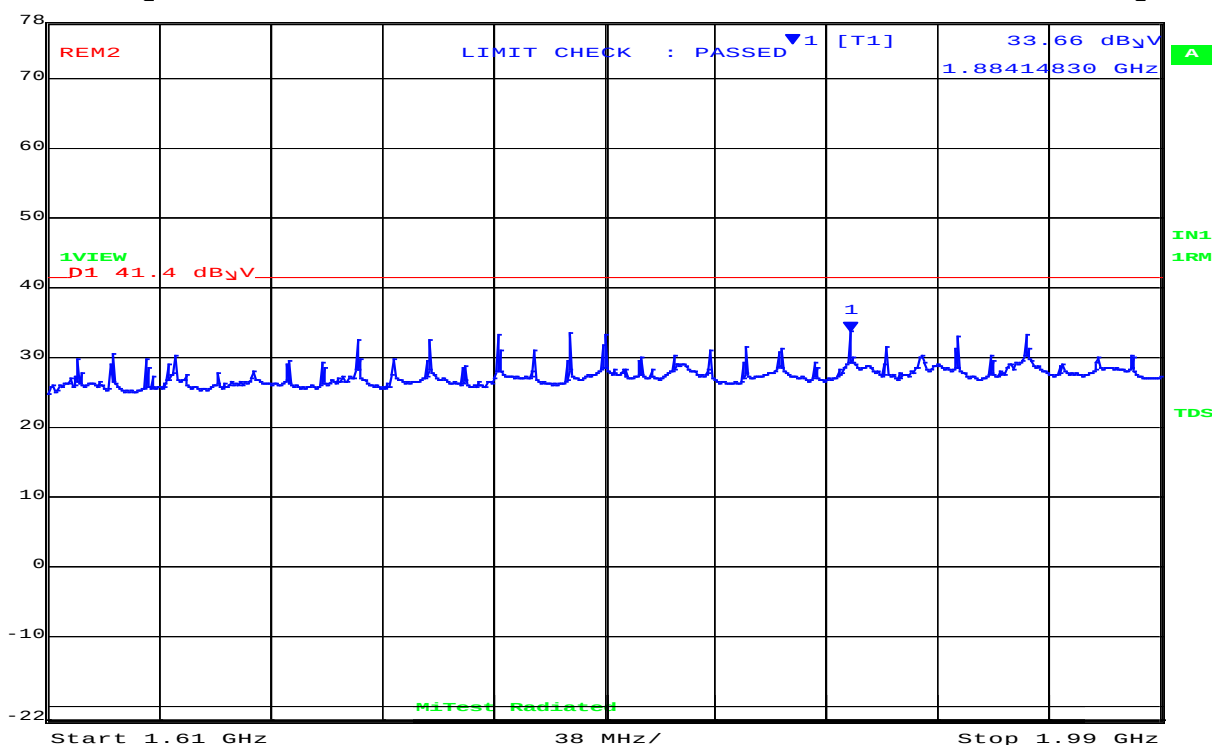
Test Measurement Results



RADIATED SPURIOUS EMISSIONS 1.61-1.99GHz Vertical

Test Freq: 6600 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
78 dB μ V	33.66 dB μ V	VBW	3 MHz		
75 dB μ V	1.88414830 GHz	SWT	5 s	Unit	dB μ V



Date: 6.NOV.2018 18:47:40

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

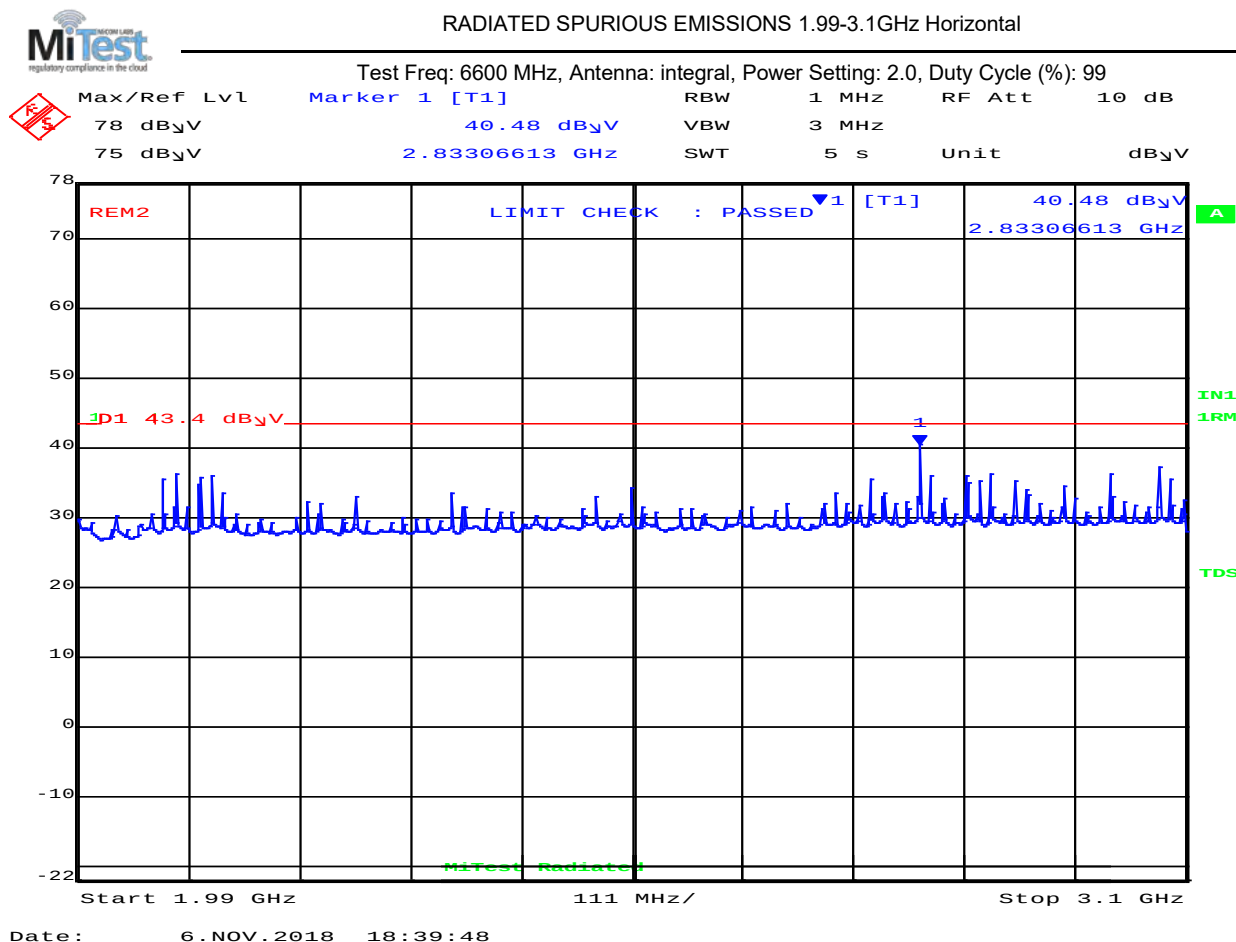


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.07*	40.1	Average	Horizontal	150	0	43.4	-3.3	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

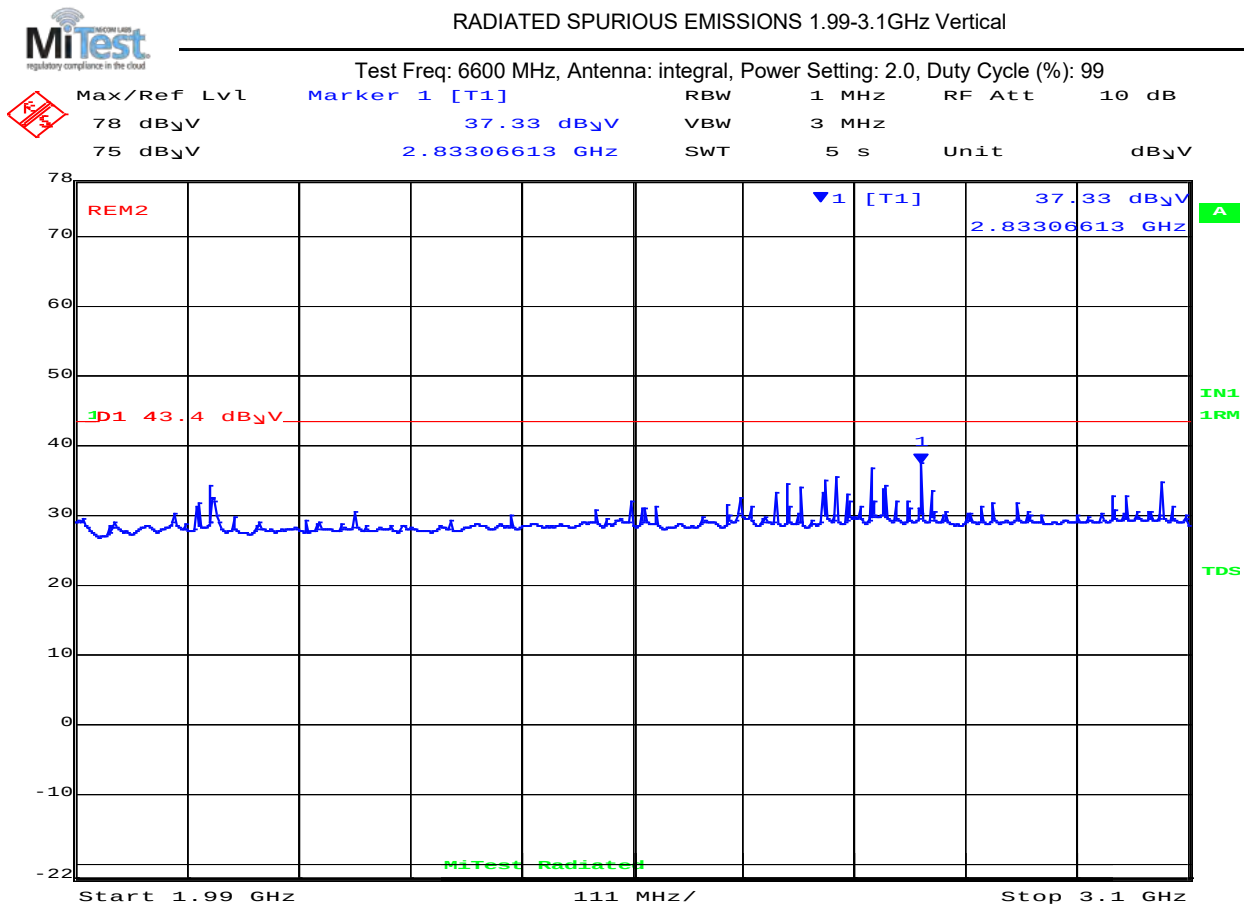


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:38:25

1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.07*	37.1	Average	Vertical	150	0	43.4	-6.3	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

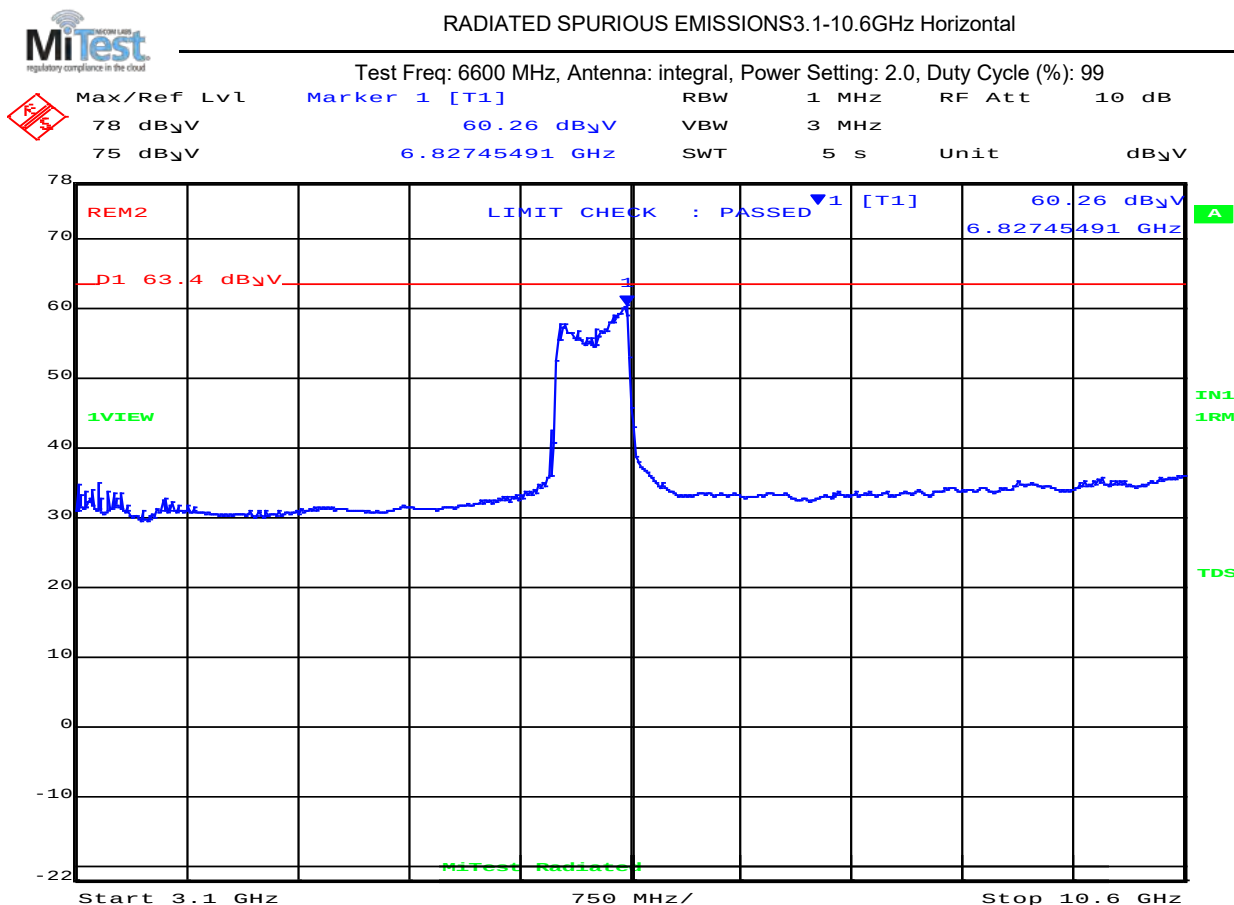


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:31:59

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	6827.45	59.1	Average	Horizontal	150	0	63.4	-4.3	Pass
2	1600.22	25.60	Average	Horizontal	150	0	29.4	-3.8	Pass

Test Notes:

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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

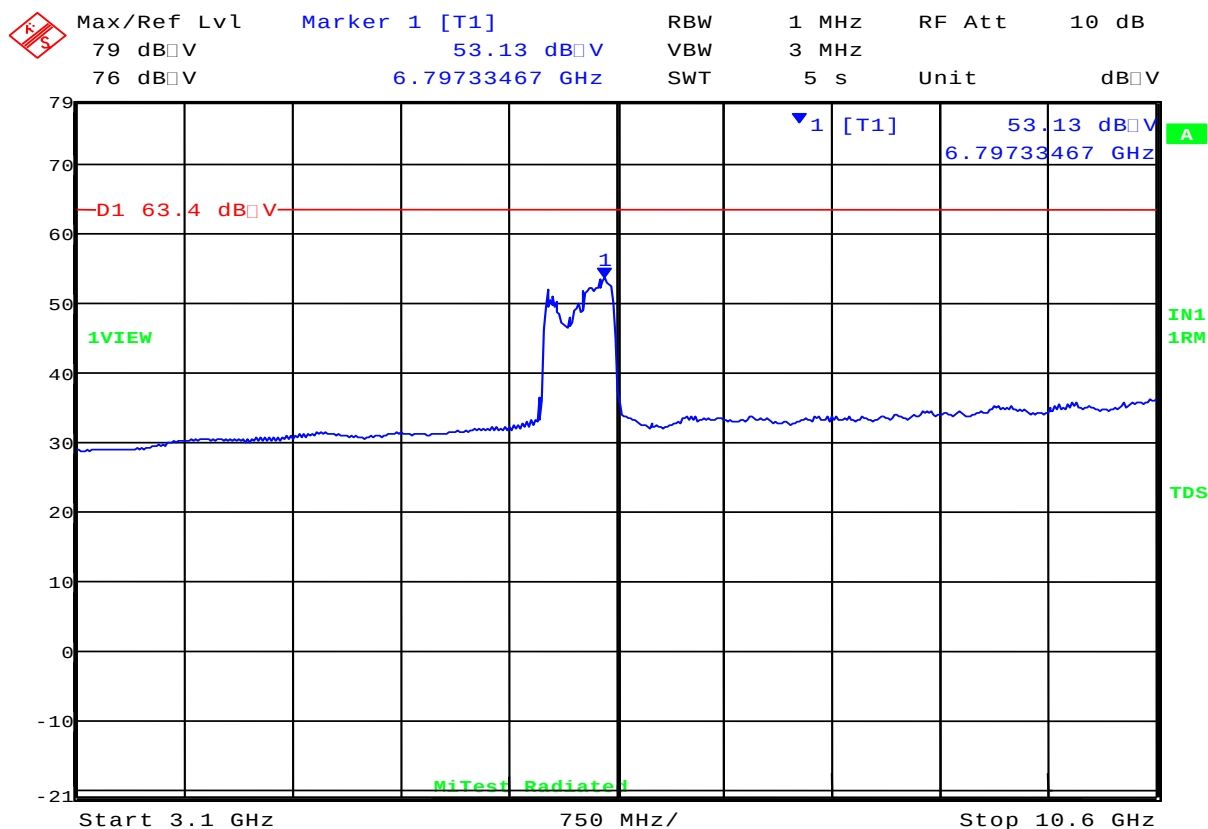
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 3.1-10.6 GHz Vertical

Test Freq: 6600 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99



Date: 6.NOV.2018 18:34:36

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

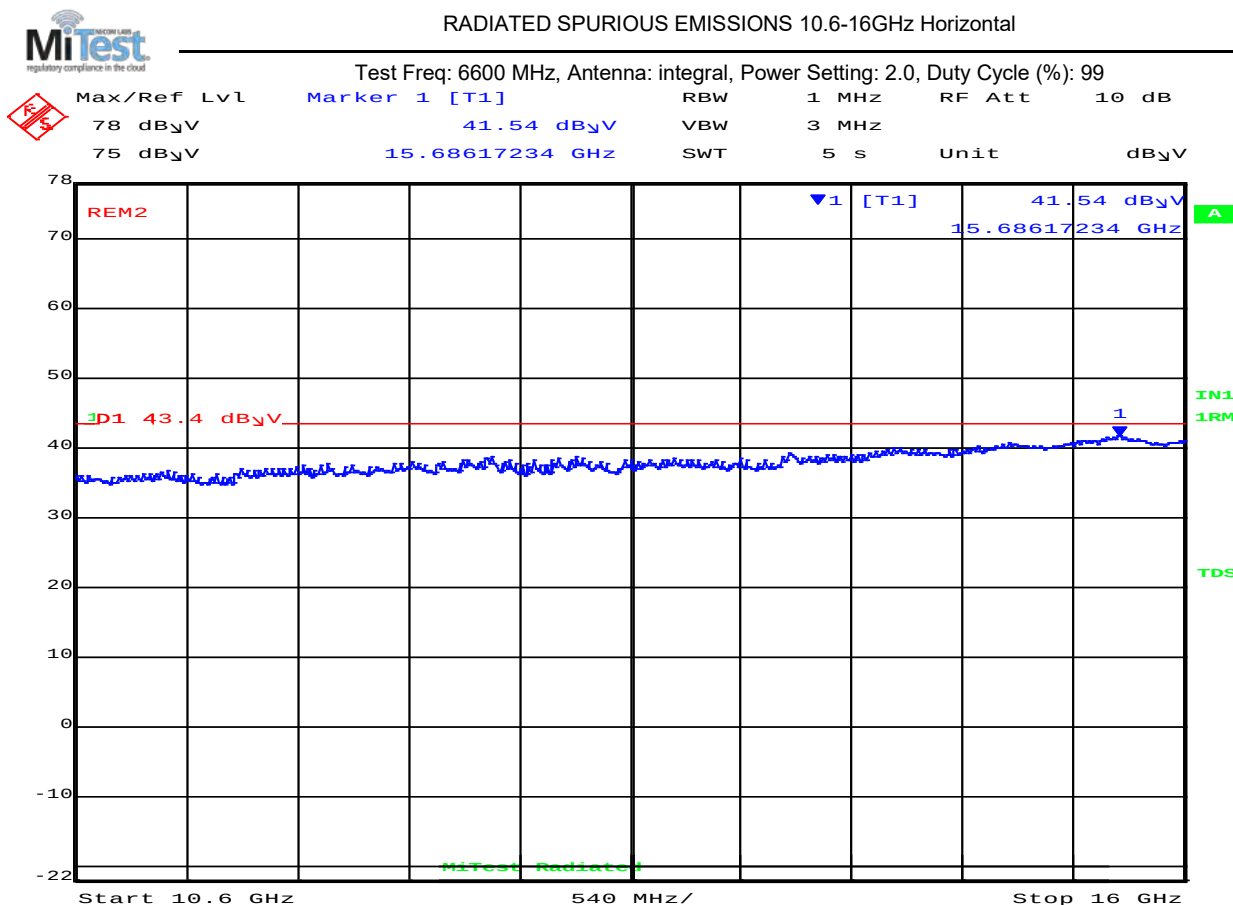


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:28:31

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.1	Average	Horizontal	150	0	43.4	-3.3	Pass

Test Notes:

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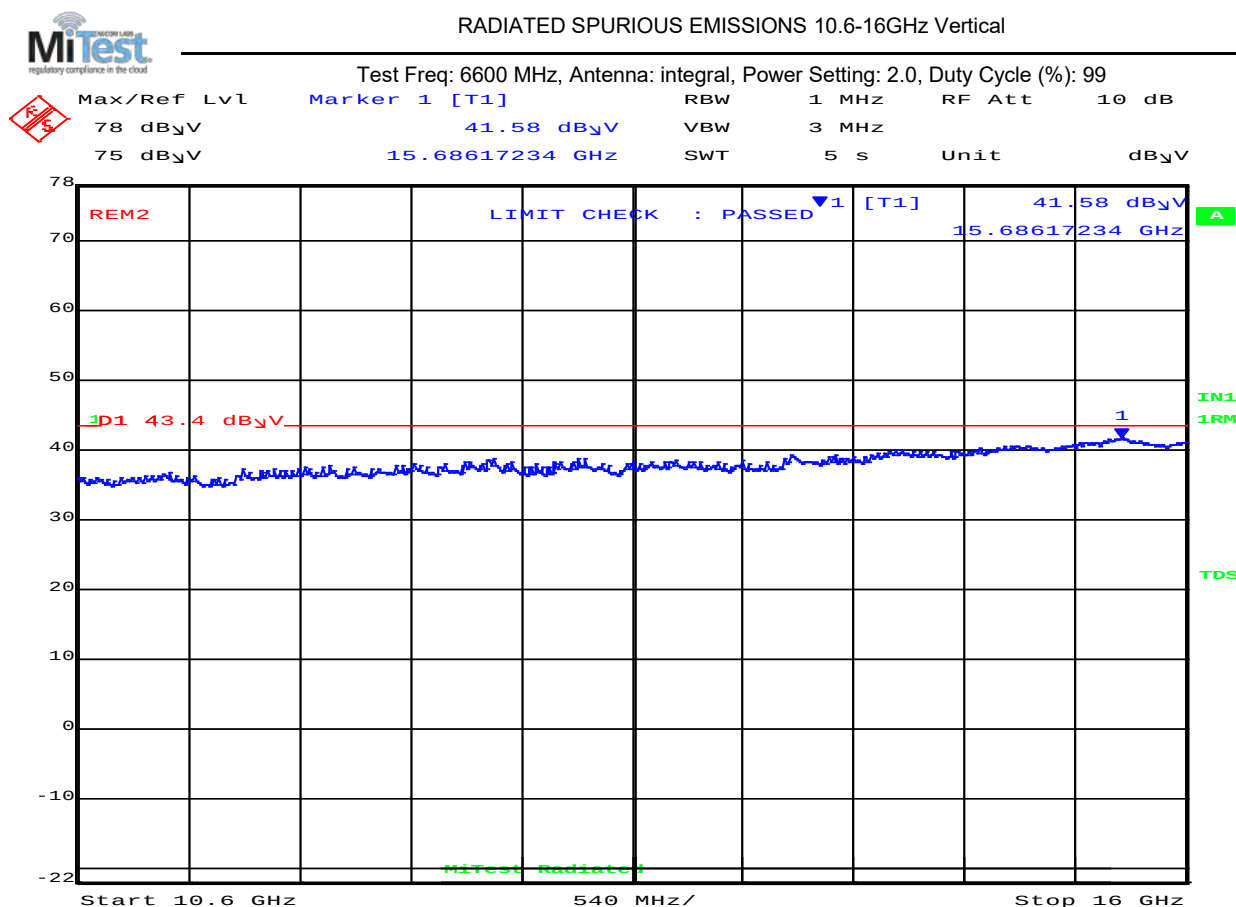


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:26:21

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.2	Average	Vertical	150	0	43.4	-3.2	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

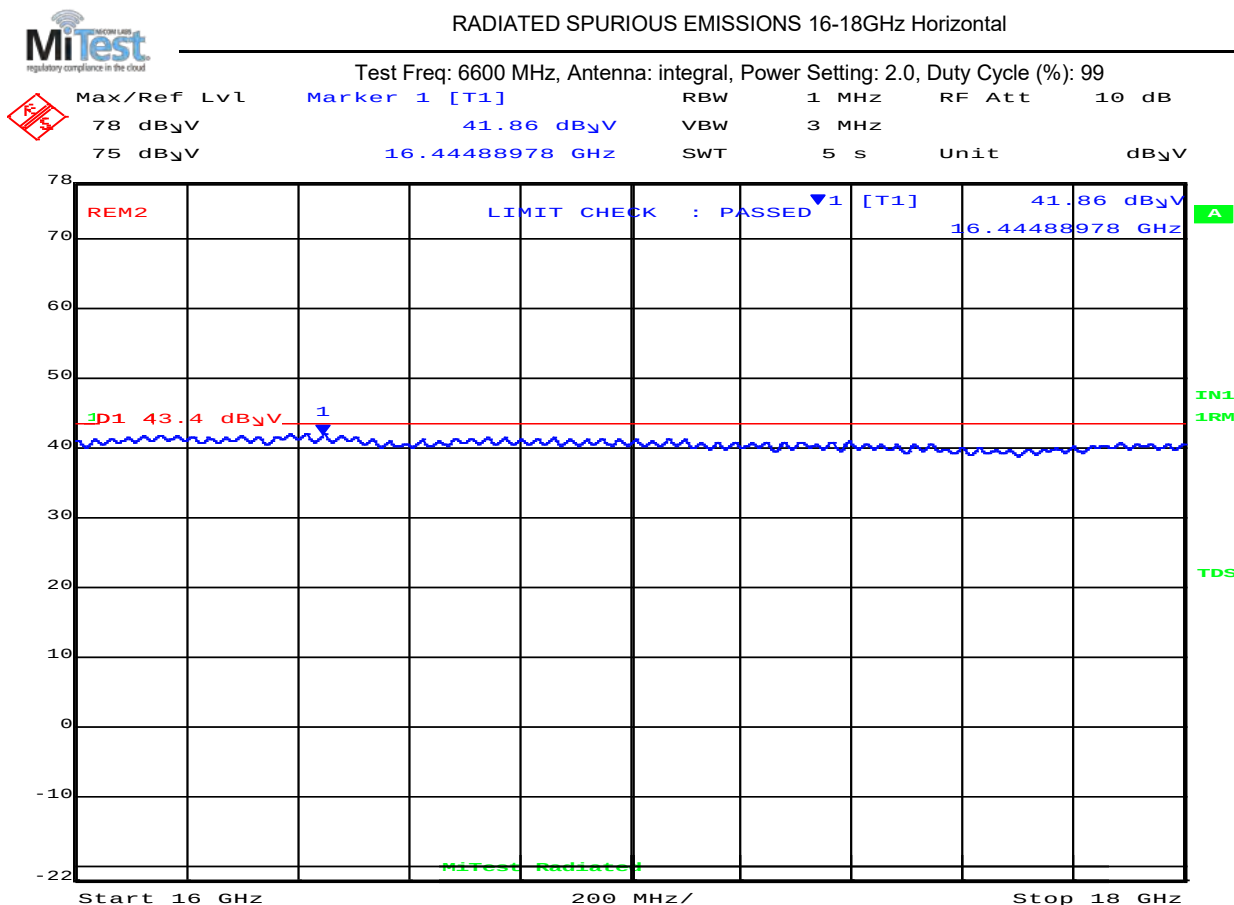


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 18:21:32

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass

Test Notes:

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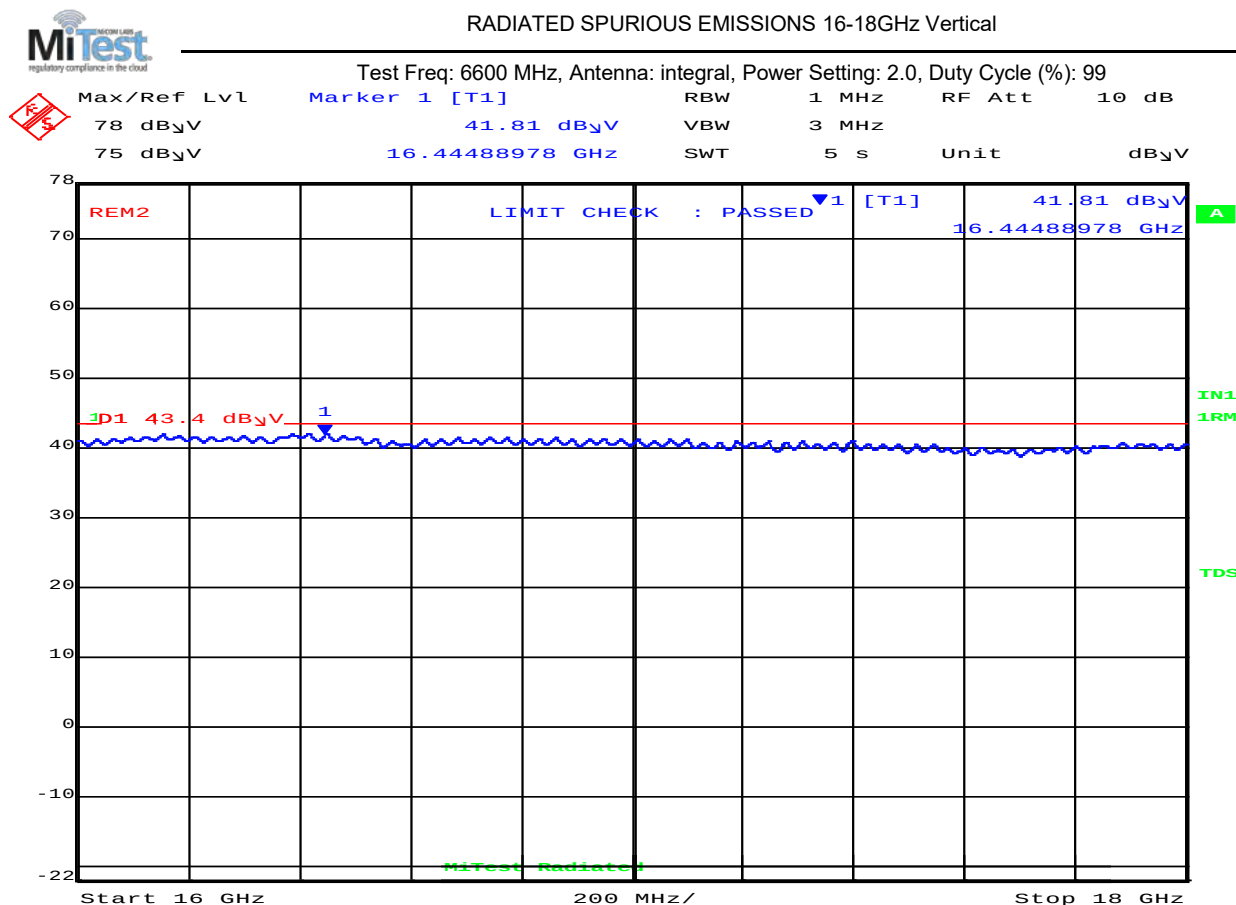


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



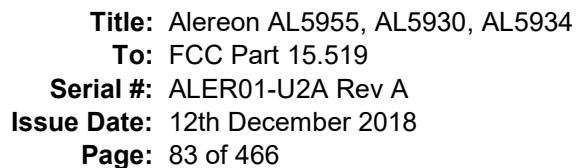
Date: 6.NOV.2018 18:24:31

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Vertical	150	0	43.4	-2.5	Pass

Test Notes:

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Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Test Measurement Results



Test Freq: 7128 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99

[illegible]

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com



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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

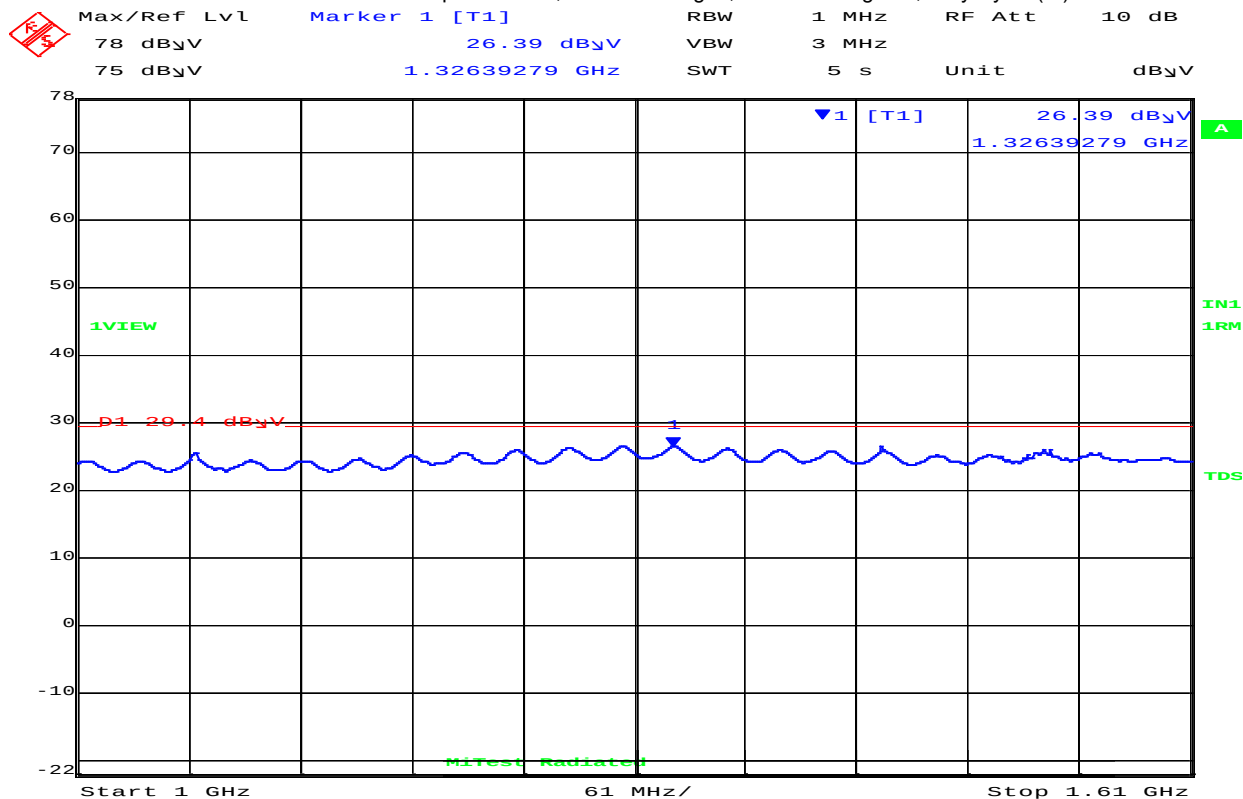
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 1.0-1.61GHz Vertical

Test Freq: 7128 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99



Date: 7.NOV.2018 14:19:50

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.39	24.8	Average	Vertical	150	0	29.4	-4.6	Pass

Test Notes:

Removed Laptop

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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

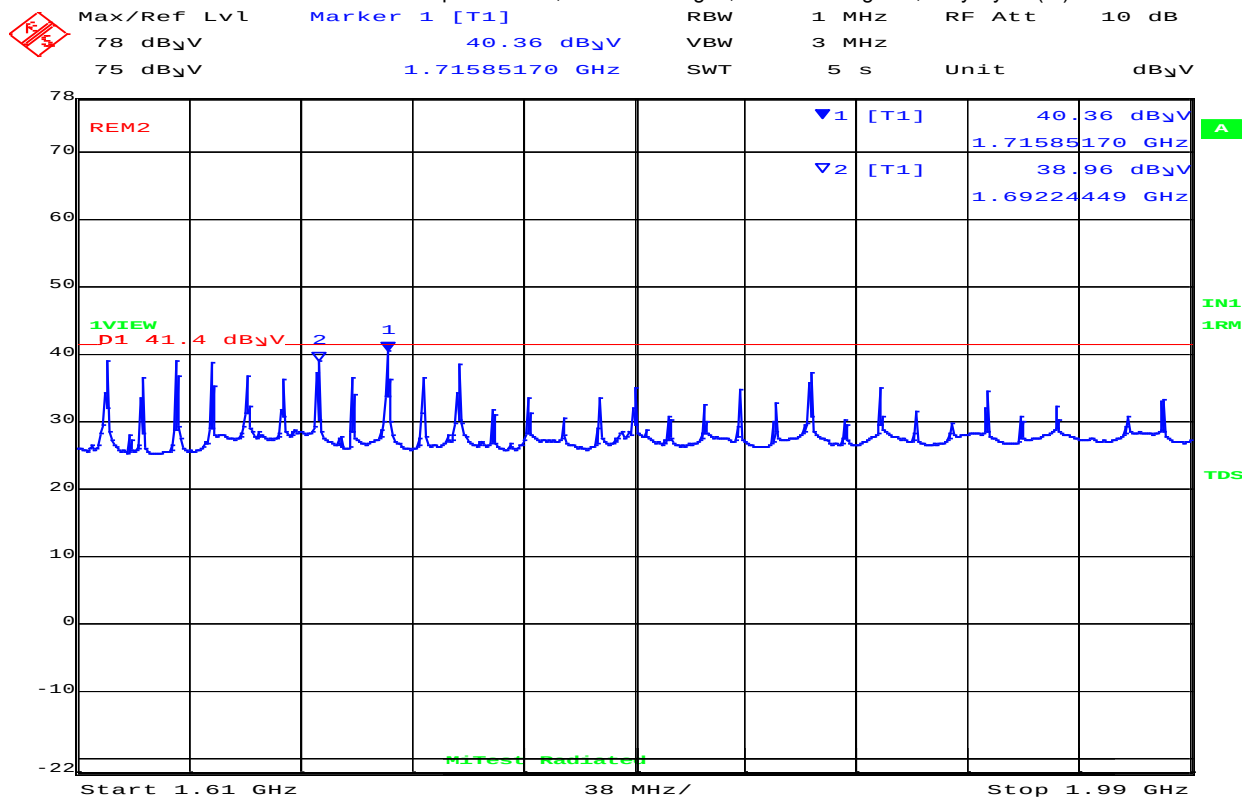
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 1.61-1.99GHz Horizontal

Test Freq: 7128 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99



Date: 6.NOV.2018 18:53:30

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1715.85*	40.6	Average	Horizontal	150	0	41.4	-2.8	Pass
2	1692.24*	40.3	Average	Horizontal	150	0	41.4	-3.1	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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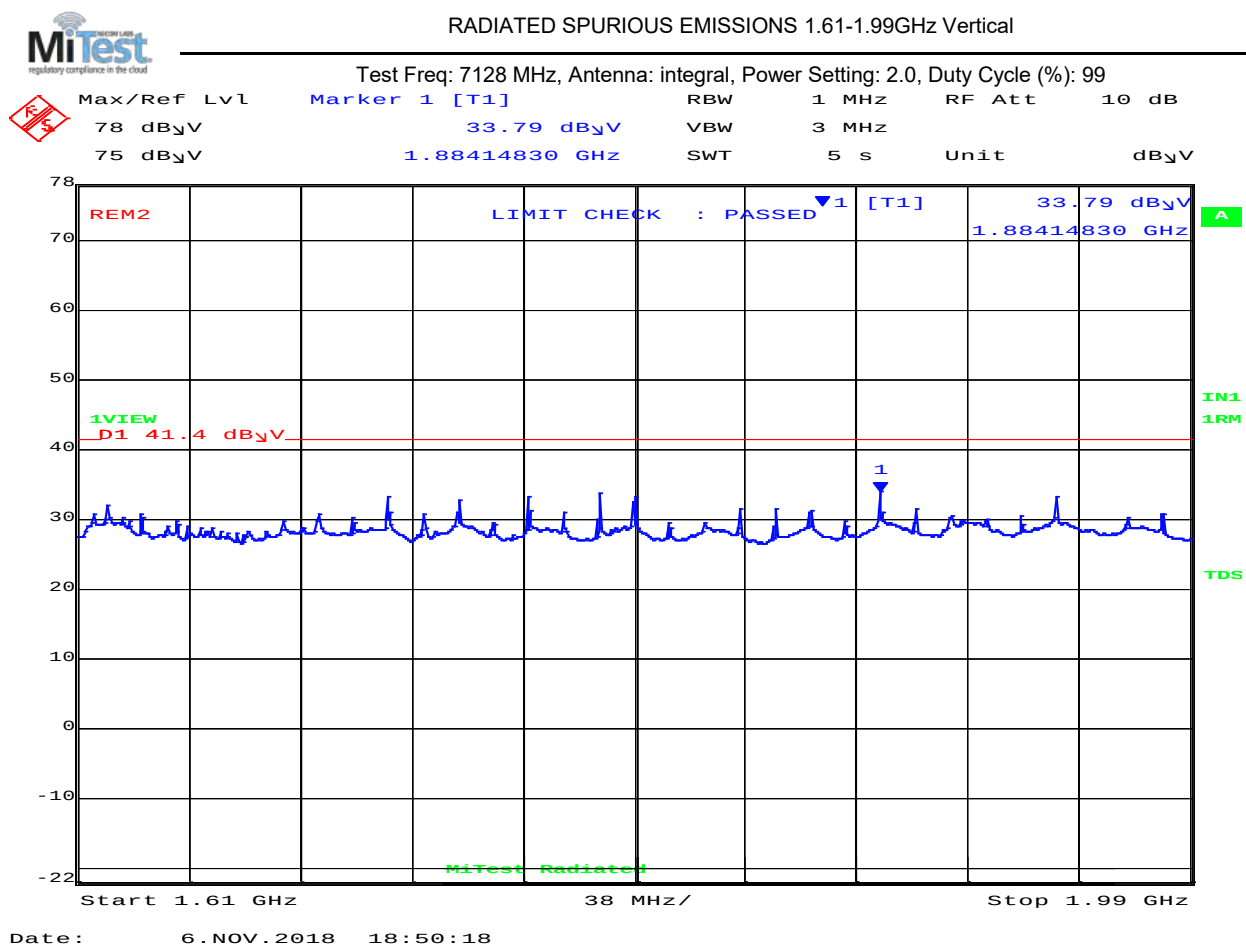


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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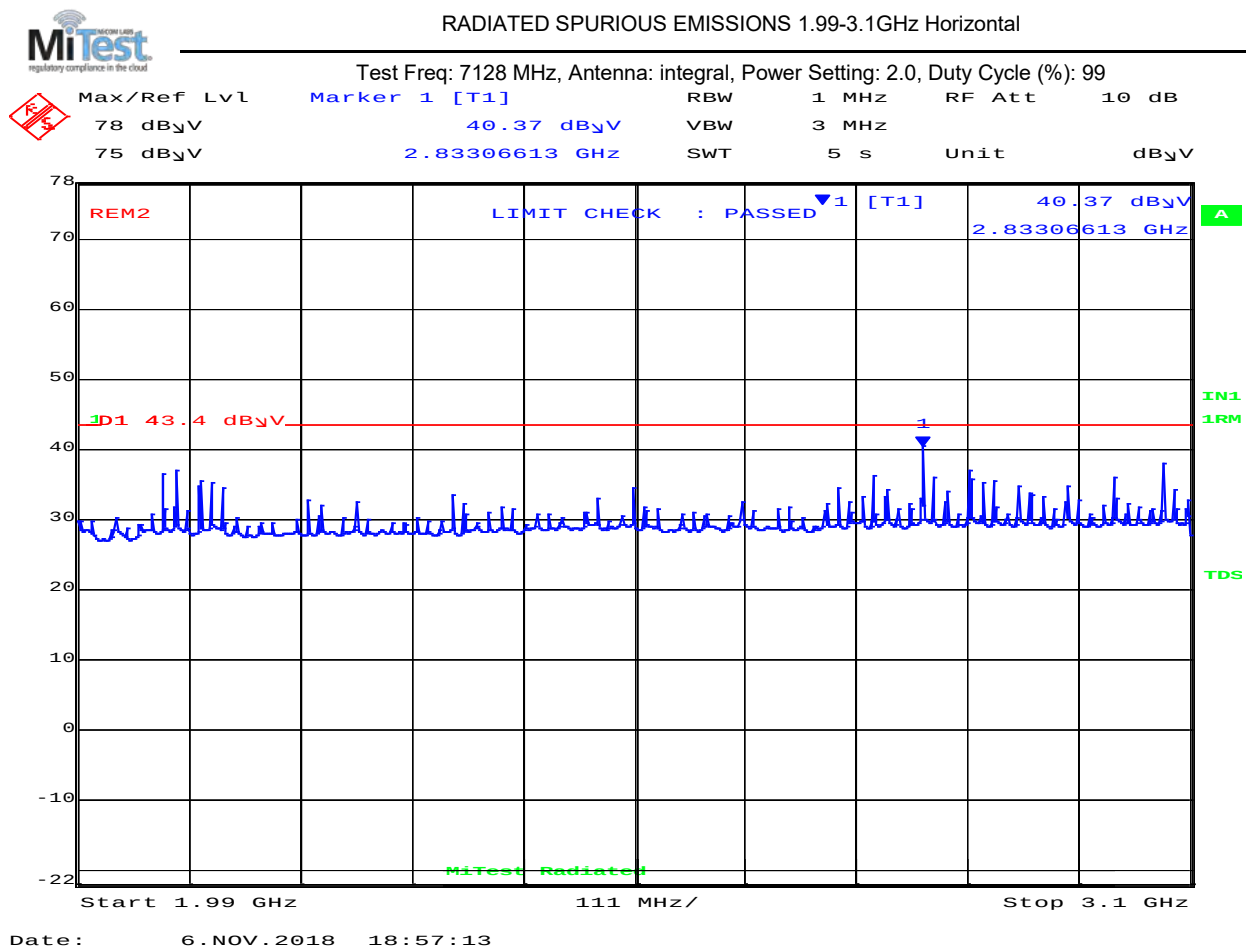


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.07*	40.5	Average	Horizontal	150	0	43.4	-2.9	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

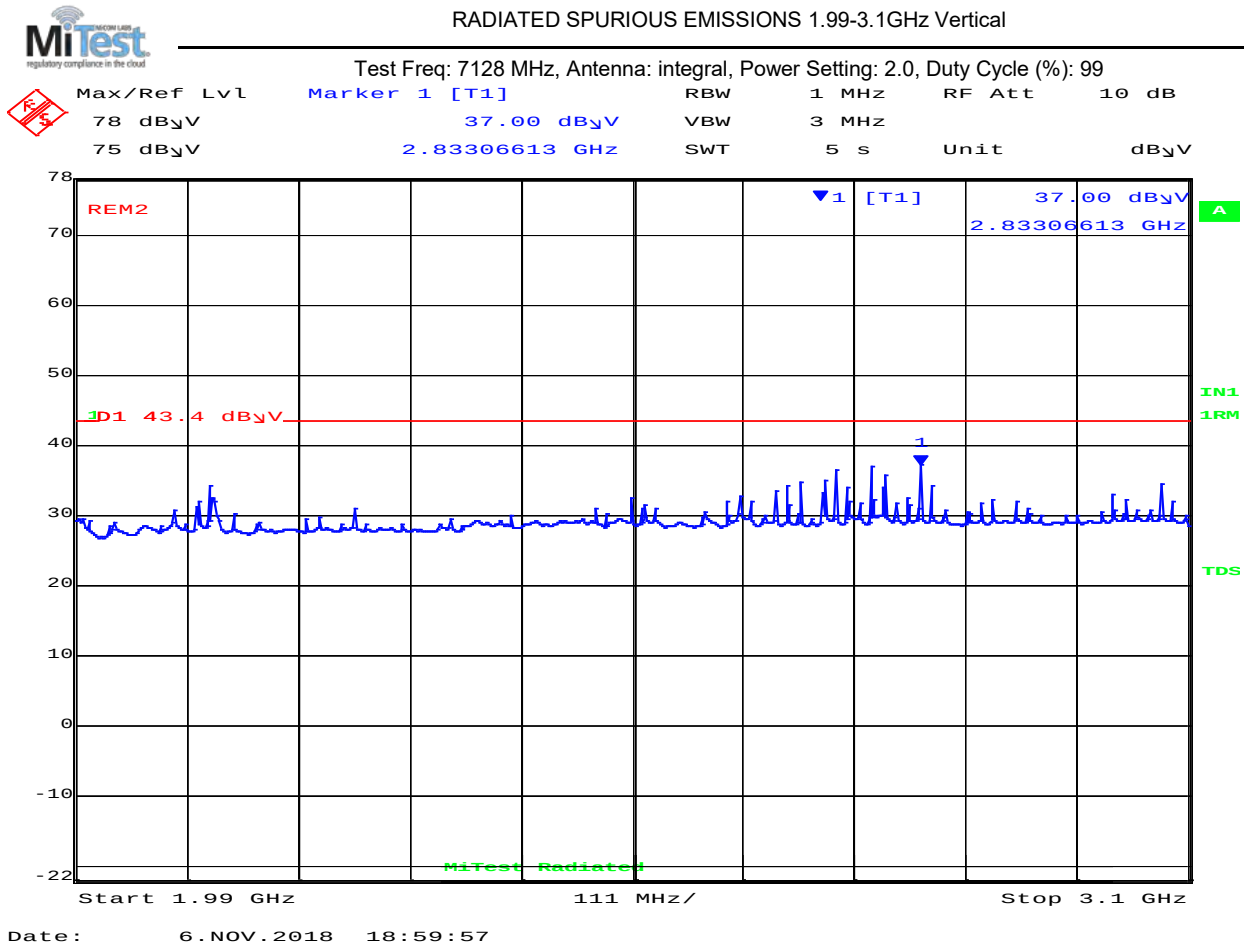


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	2833.07*	37.1	Average	Vertical	150	0	43.4	-6.3	Pass

Test Notes:

Source Laptop and UART to serial converter cable

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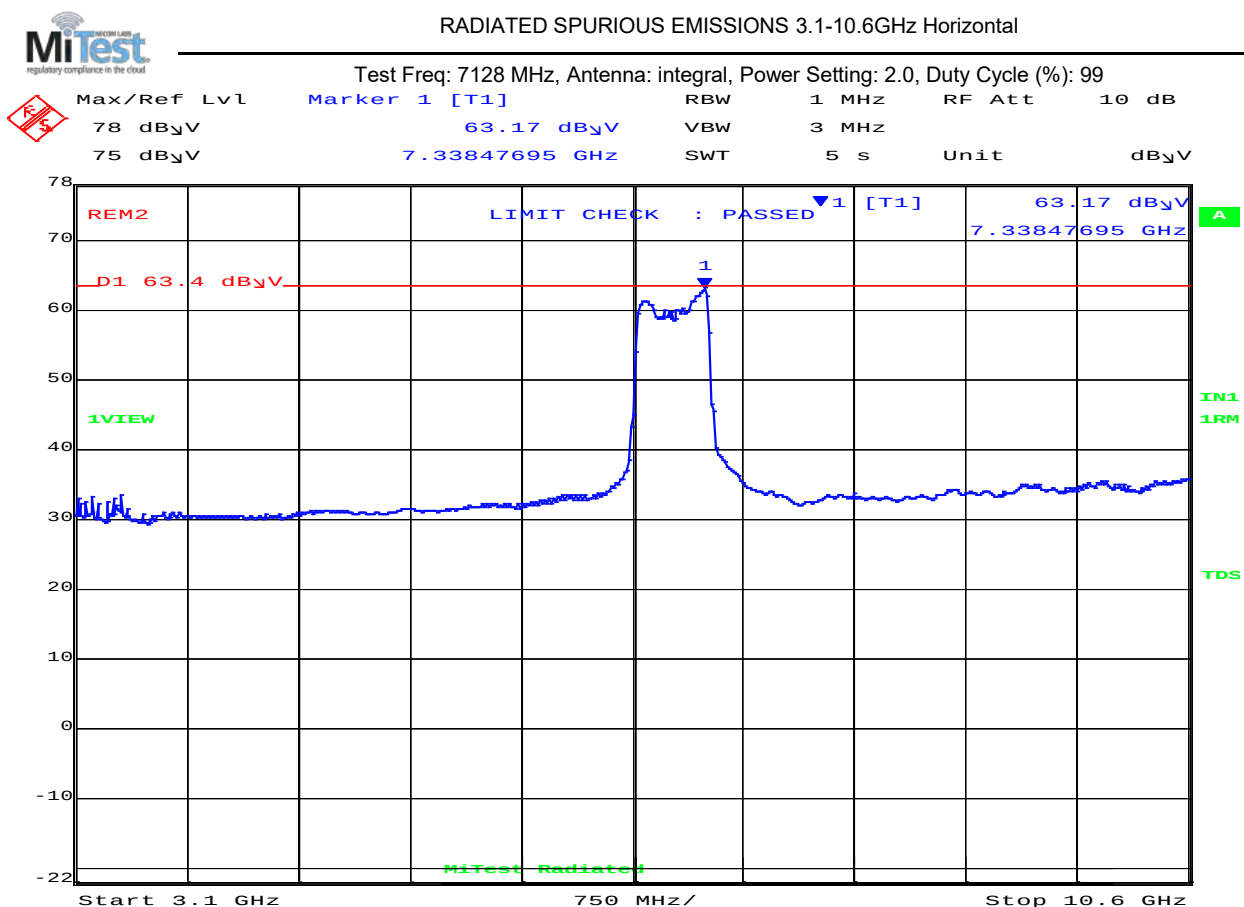


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:04:18

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	7338.48	62.2	Average	Horizontal	150	0	63.4	-1.2	Pass

Test Notes:

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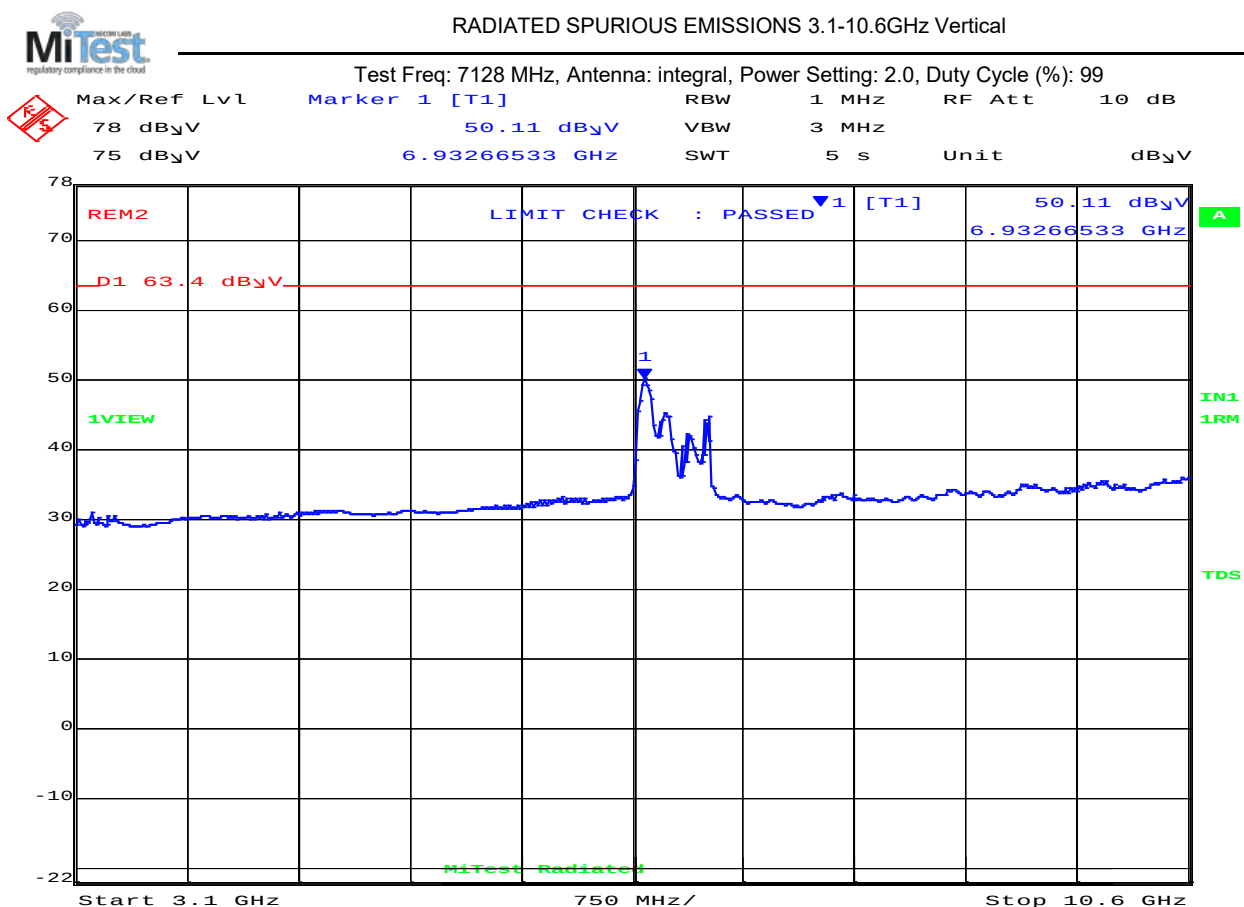


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:01:29

3100.00 - 10600.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

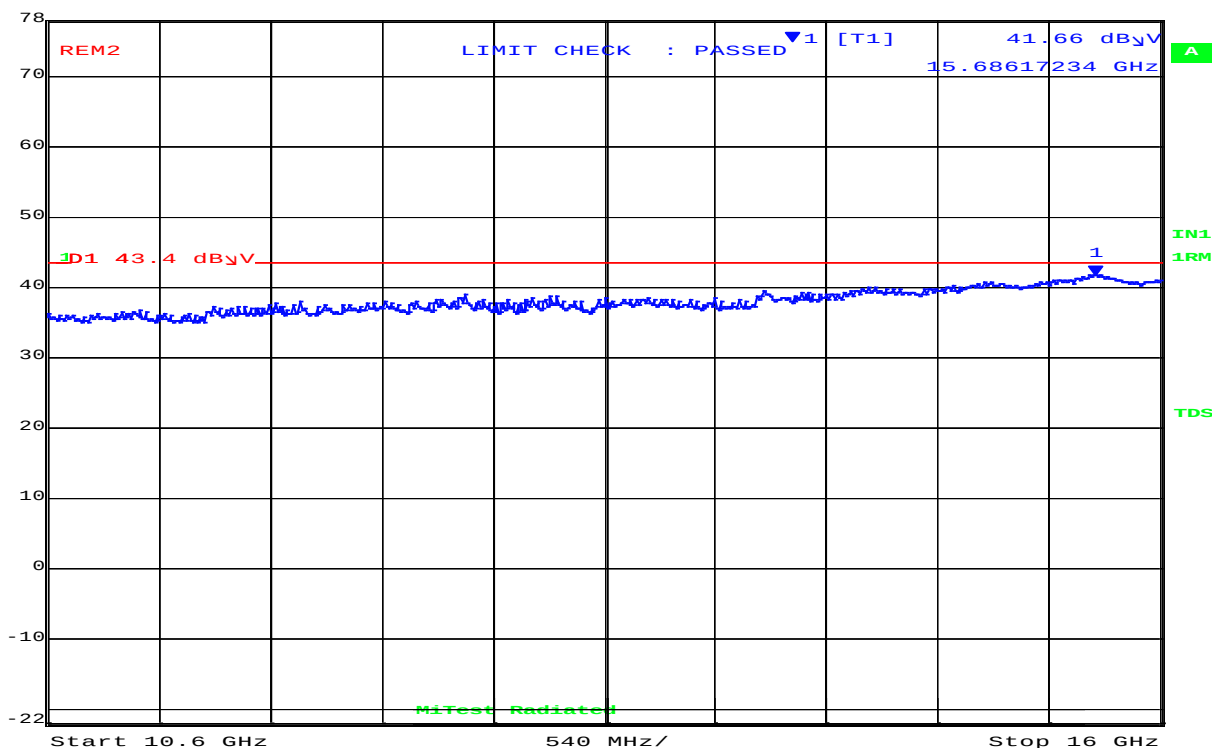
Test Measurement Results



RADIATED SPURIOUS EMISSIONS 10.6-16GHz Horizontal

Test Freq: 7128 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
78 dBμV	41.66 dBμV	VBW	3 MHz		
75 dBμV	15.68617234 GHz	SWT	5 s	Unit	dBμV



Date: 6.NOV.2018 19:07:31

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	40.3	Average	Horizontal	150	0	43.4	-3.1	Pass
Test Notes:									

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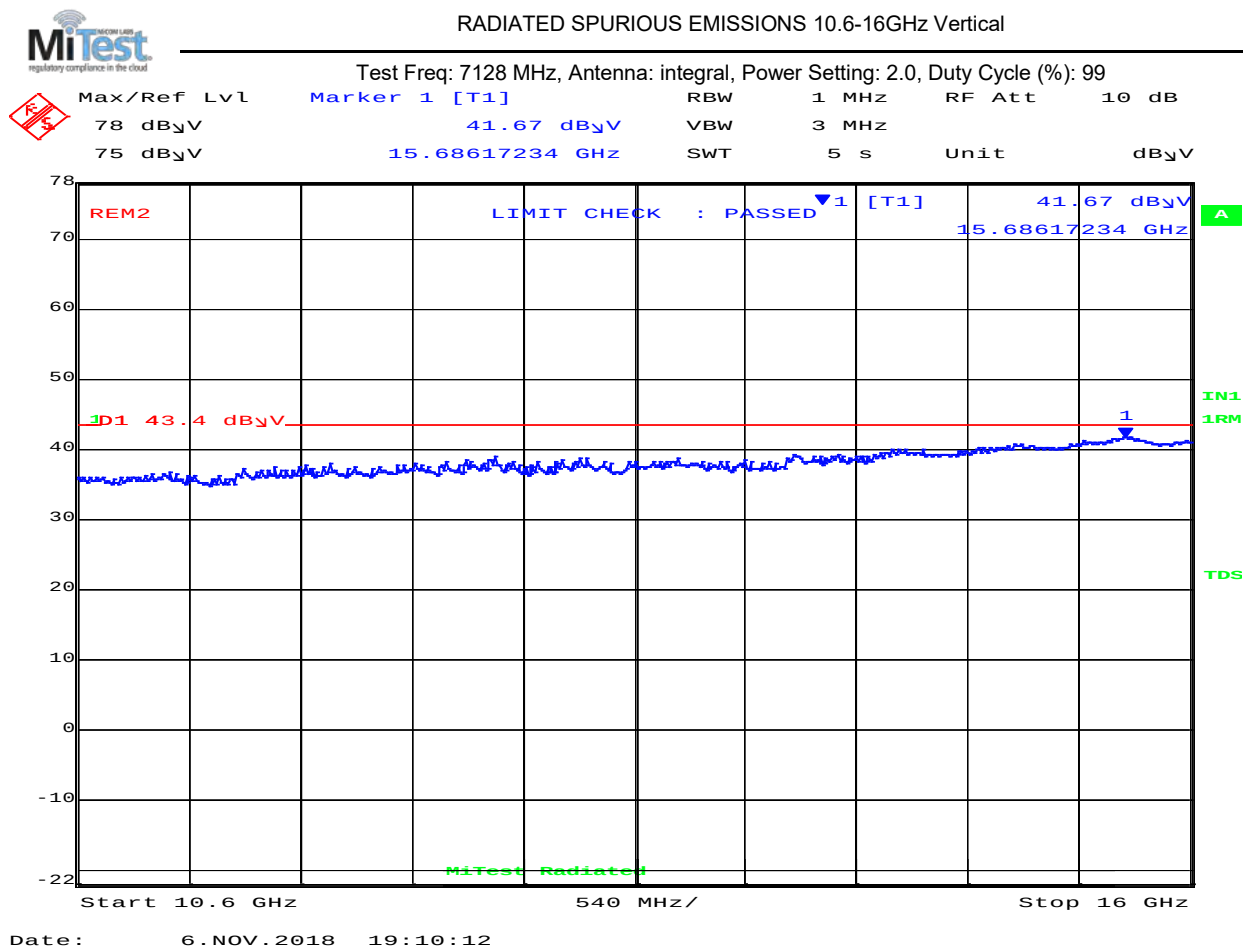


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.3	Average	Vertical	150	0	43.4	-3.1	Pass

Test Notes:

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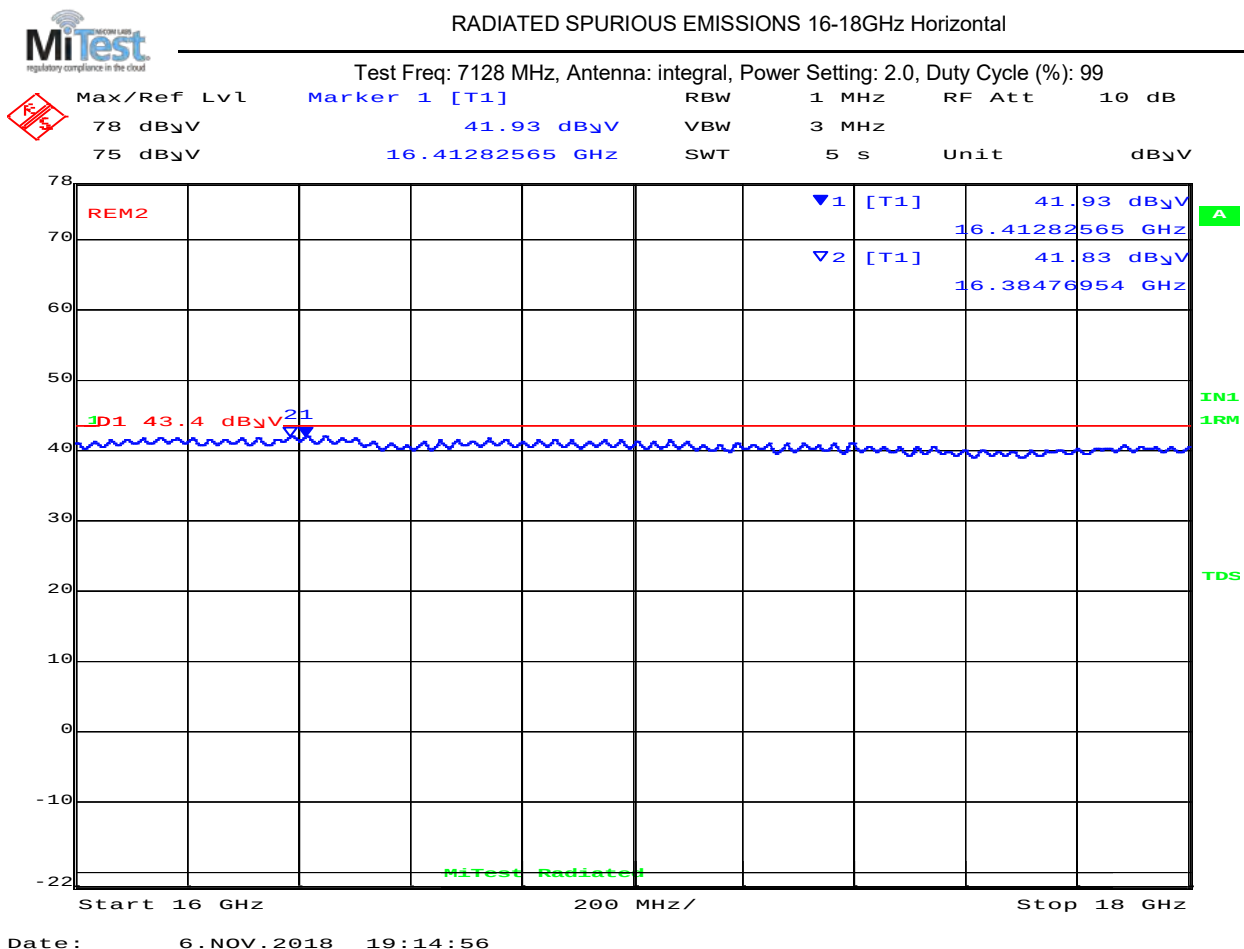


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16412.82	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass
2	163884.77	40.8	Average	Horizontal	150	0	43.4	-2.6	Pass

Test Notes:

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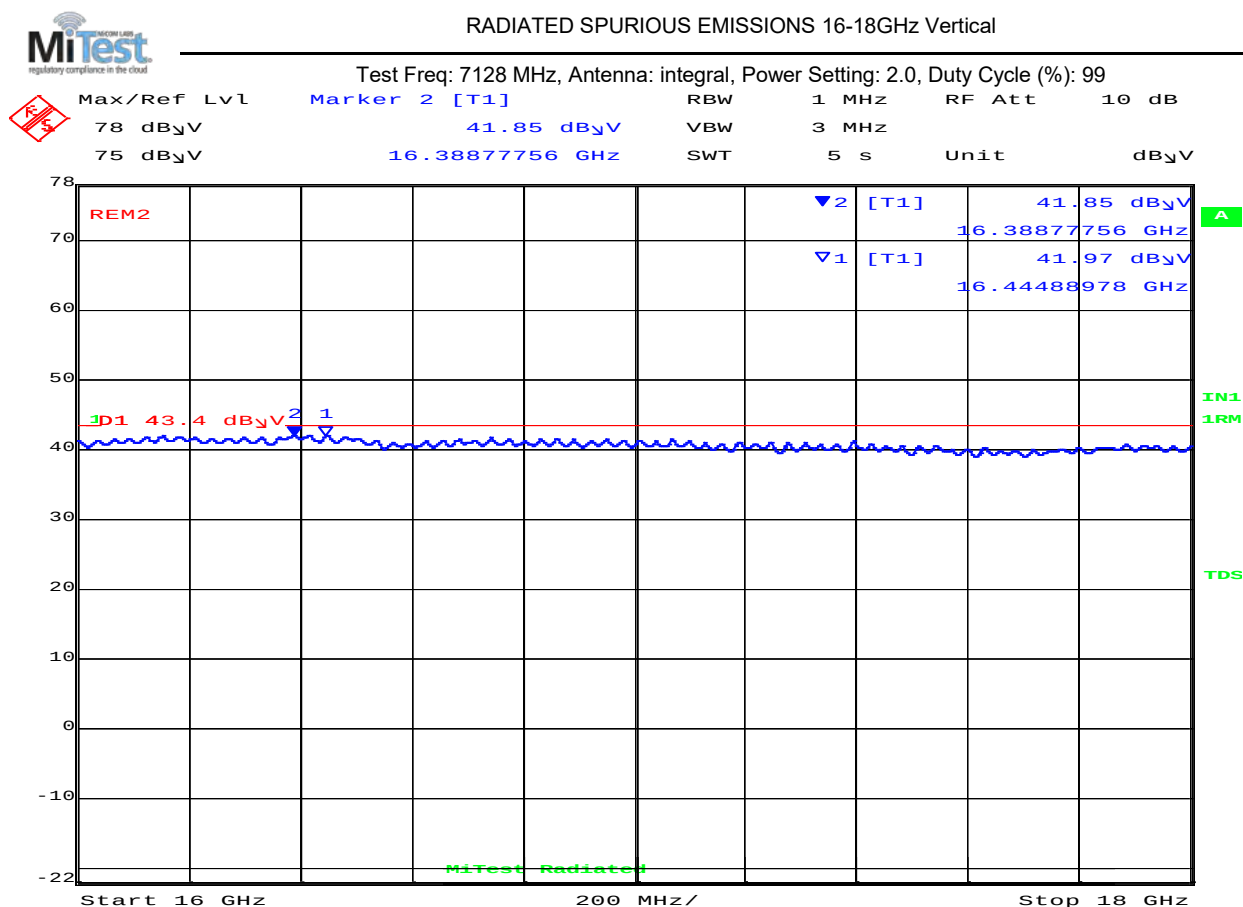


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:11:27

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Vertical	150	0	43.4	-2.5	Pass
2	16388.78	40.8	Average	Vertical	150	0	43.4	-2.6	Pass

Test Notes:

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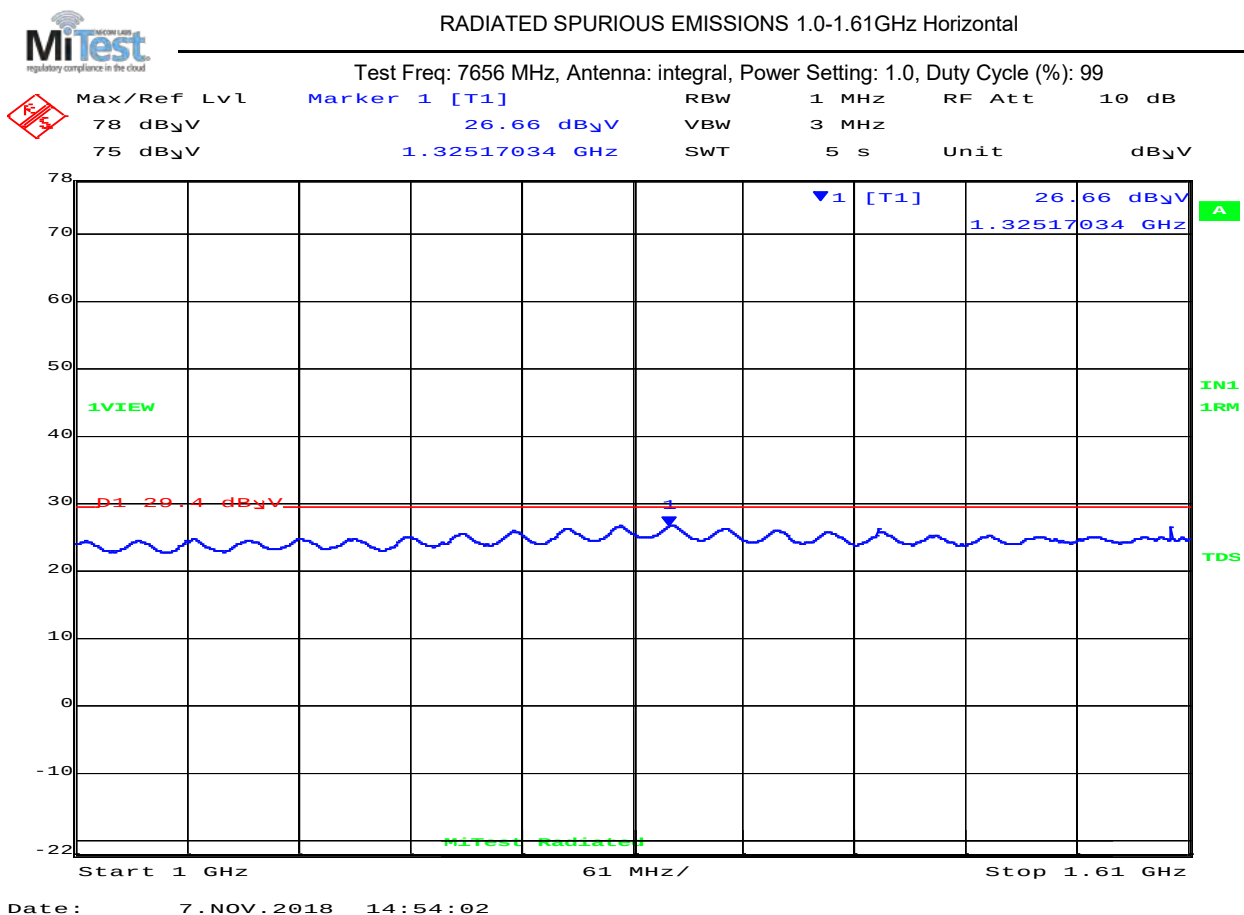
Title: Alereon AL5955, AL5930, AL5934
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7656 MHz (Covers Band Group 3 TFC 7 and Band Group 6 TFC 5)

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1325.17	25.3	Average	Horizontal	150	0	29.4	-4.1	Pass
Test Notes: Laptop Removed									

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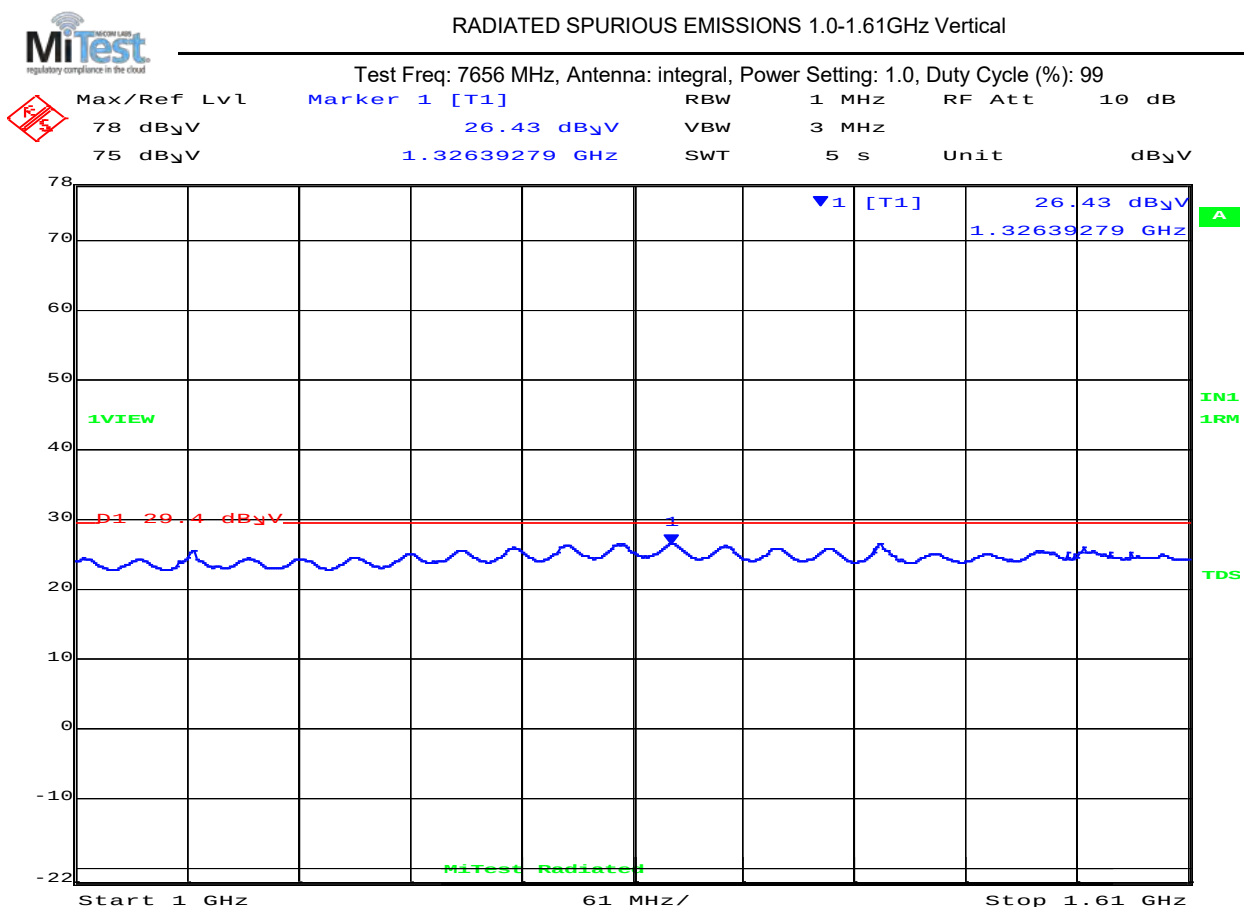


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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 14:51:33

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1326.39	25.1	Average	Vertical	150	0	29.4	-4.1	Pass

Test Notes:

Laptop Removed

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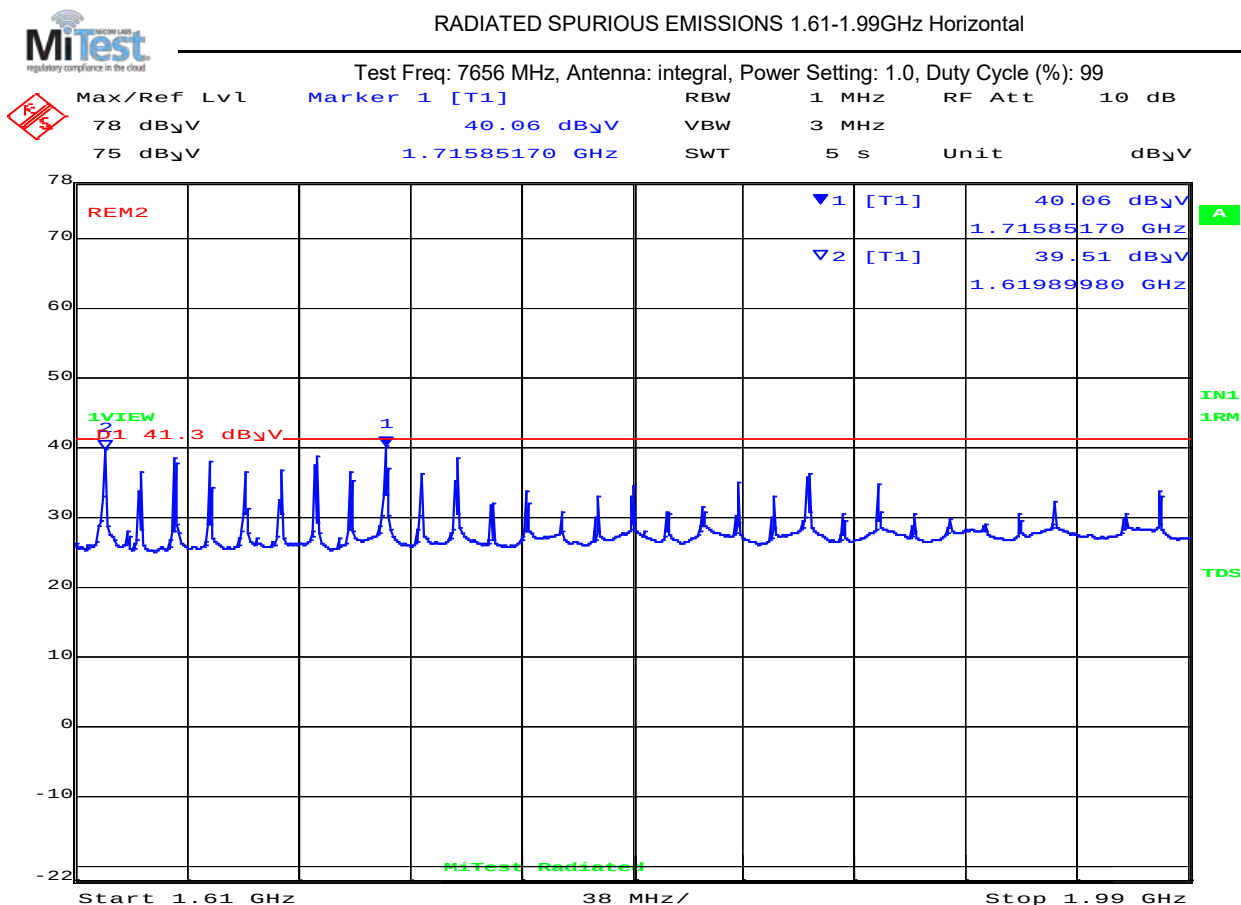


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:42:17

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1715.85*	40.1	Average	Horizontal	150	0	43.4	-3.3	Pass
2	1619.99*	39.6	Average	Horizontal	150	0	43.4	-3.8	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

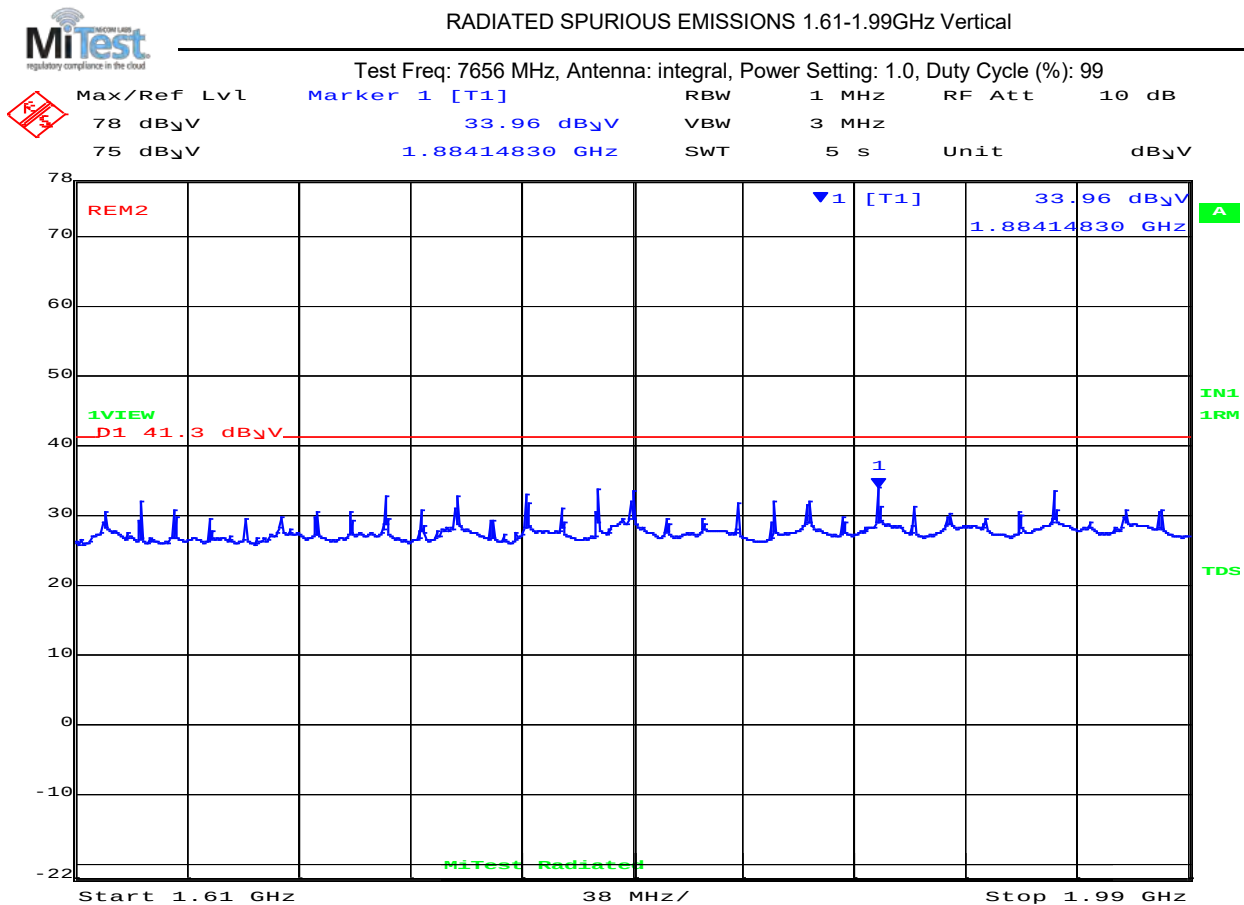


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:46:01

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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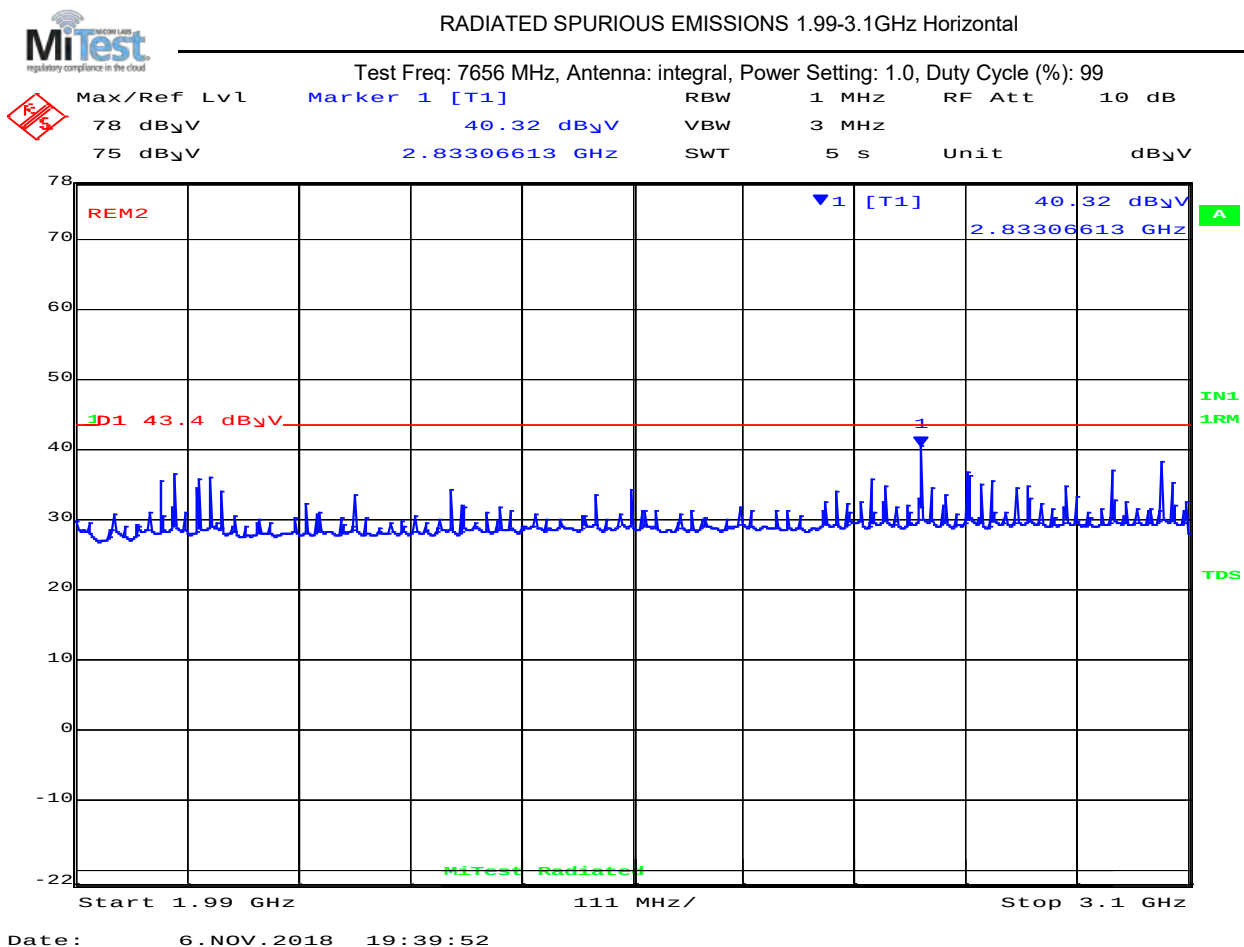


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.07*	42.3	Average	Horizontal	150	0	43.4	-1.1	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

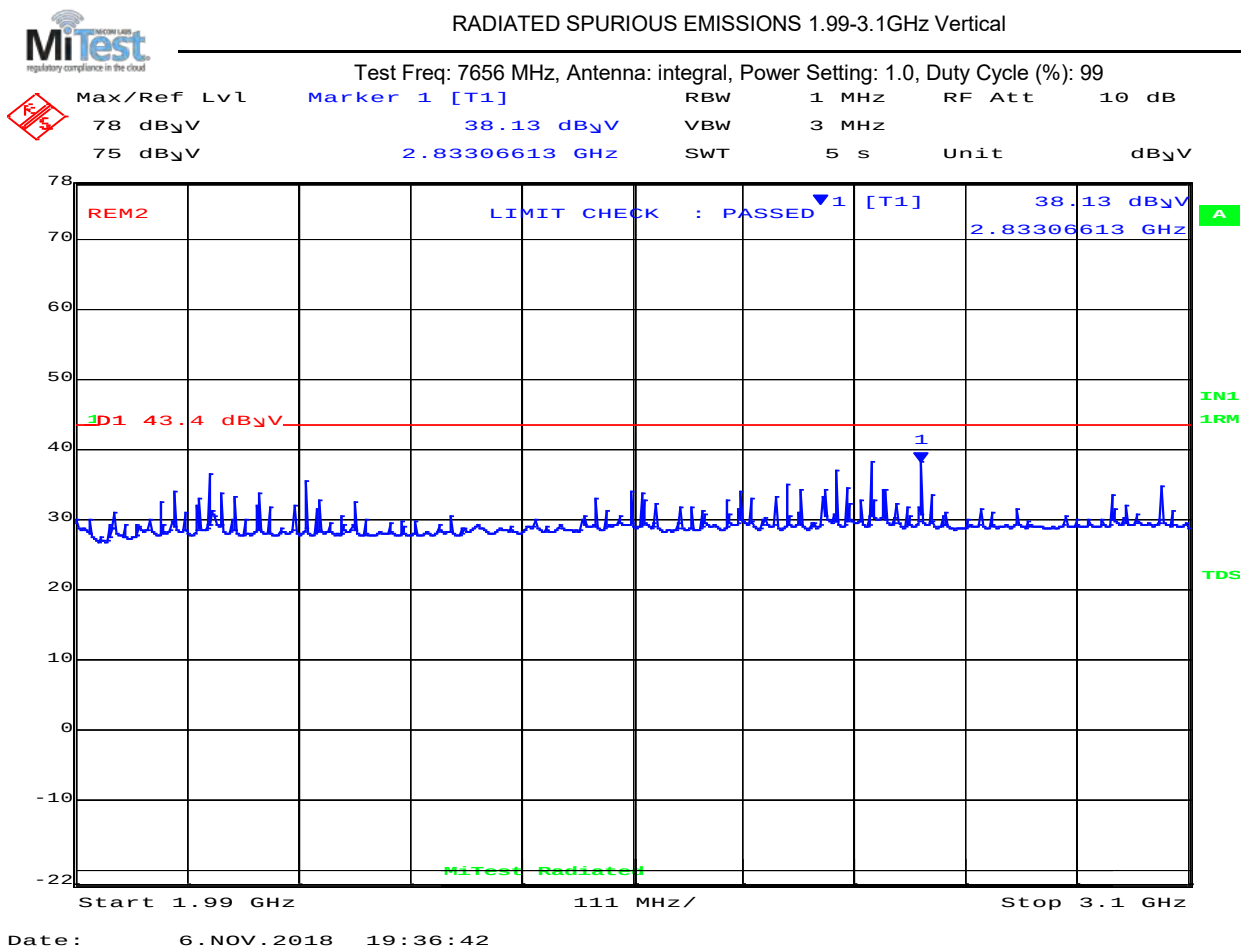


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	2833.07*	40.2	Average	Vertical	150	0	43.4	-3.2	Pass

Test Notes:

Source Laptop and UART to serial converter cable

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

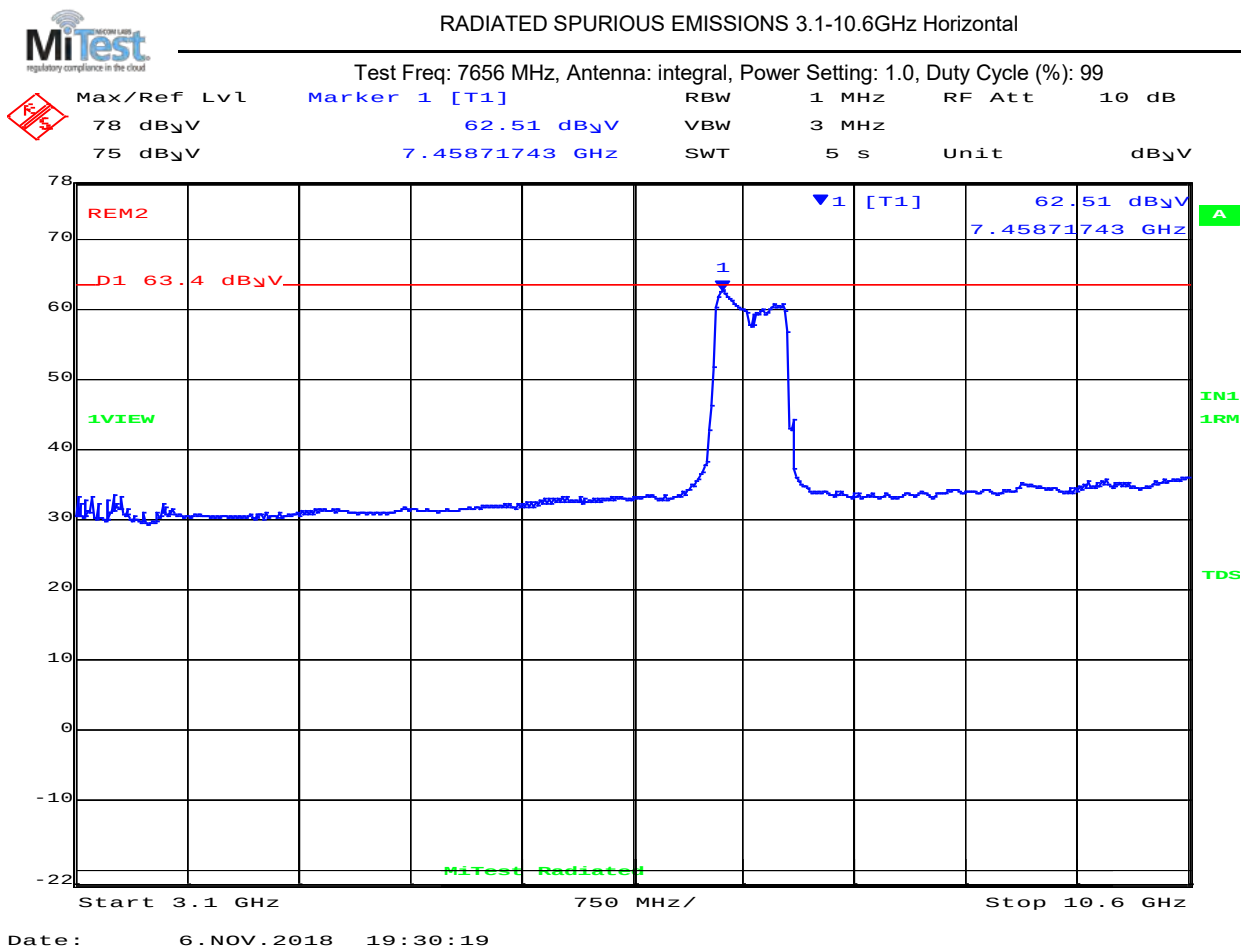


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	7458.72	61.6	Average	Horizontal	150	0	63.4	-1.8	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

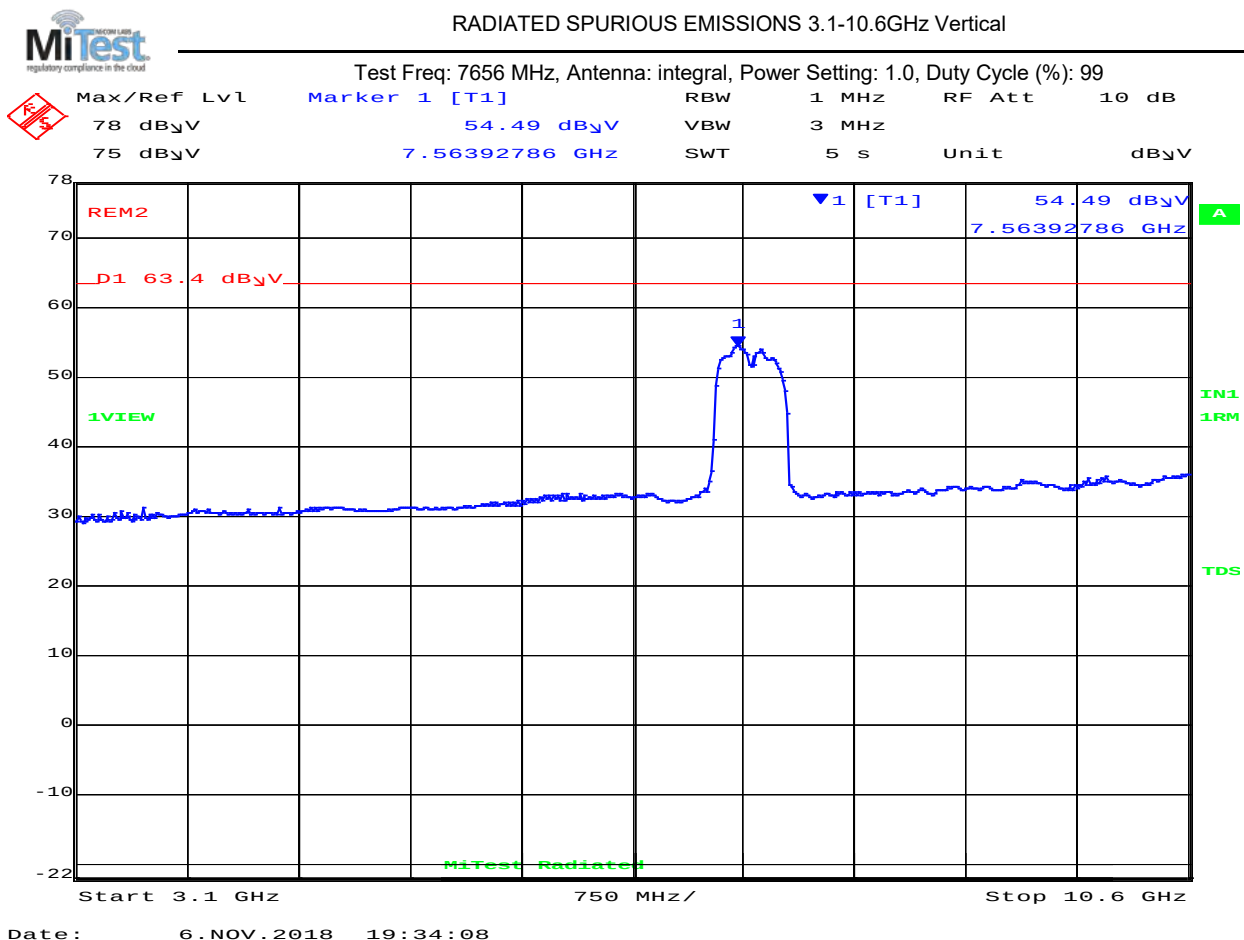


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

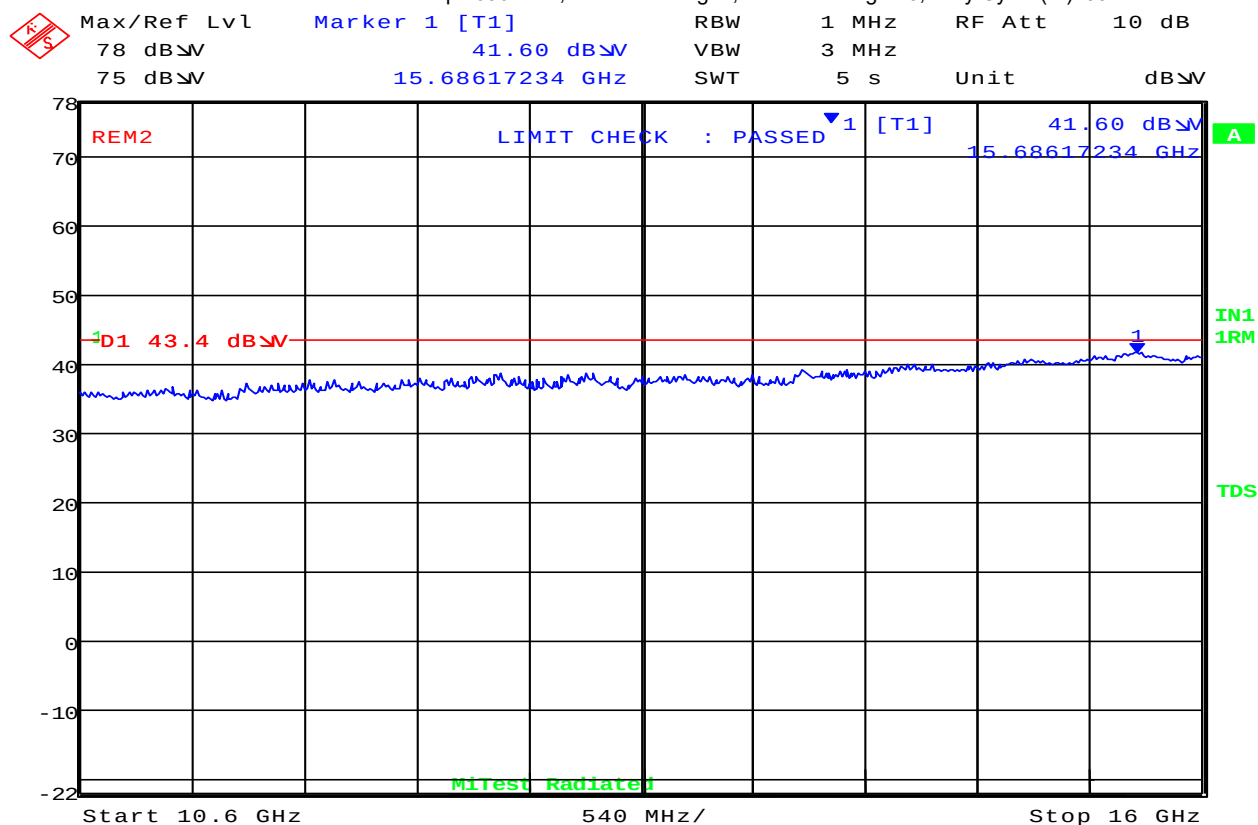
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 10.6-16GHz Horizontal

Test Freq: 7656 MHz, Antenna: integral, Power Setting: 1.0, Duty Cycle (%): 99



Date: 6.NOV.2018 19:29:24

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	40.2	Average	Horizontal	150	0	43.4	-3.2	Pass

Test Notes:

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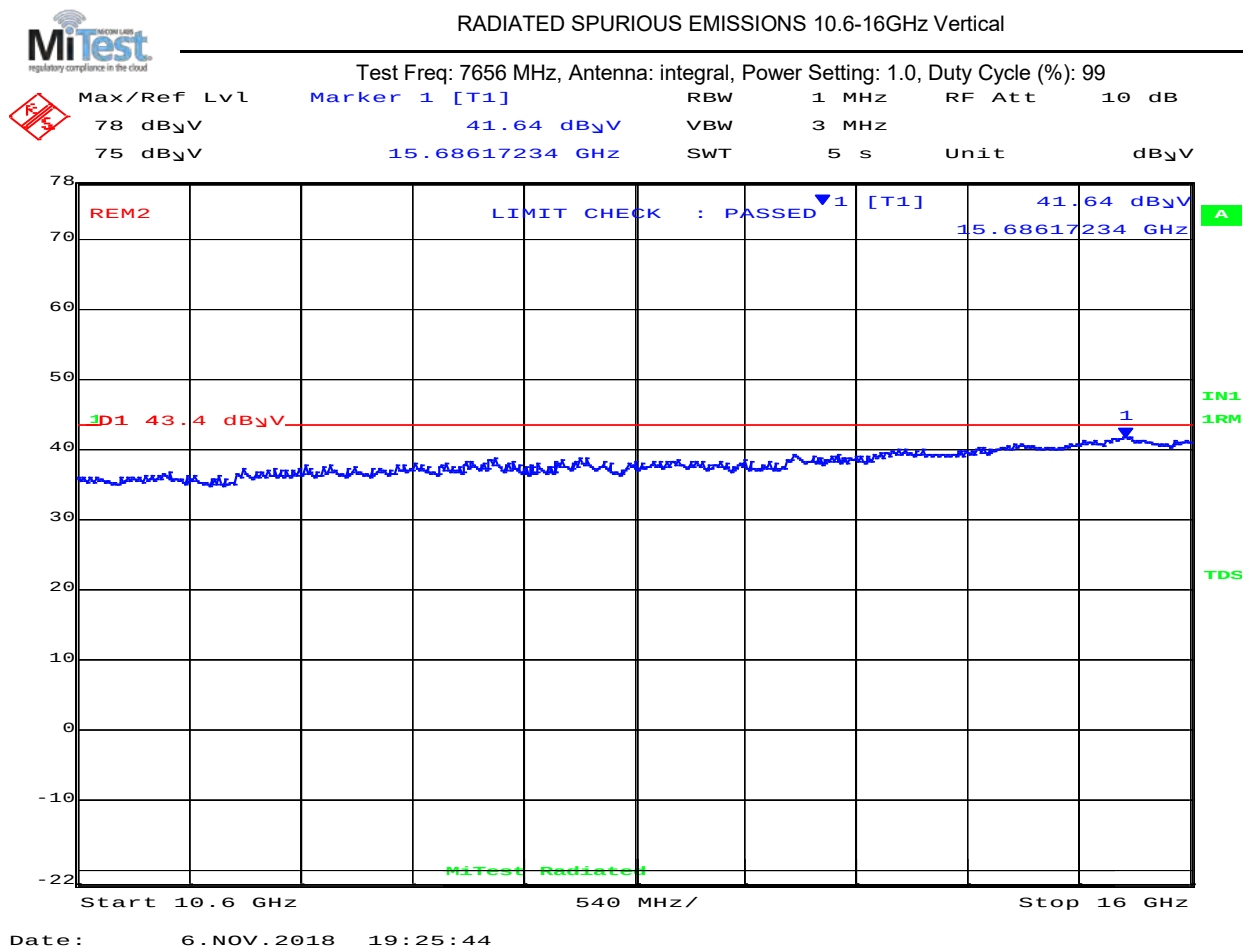


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.3	Average	Vertical	150	0	43.4	-3.1	Pass

Test Notes:

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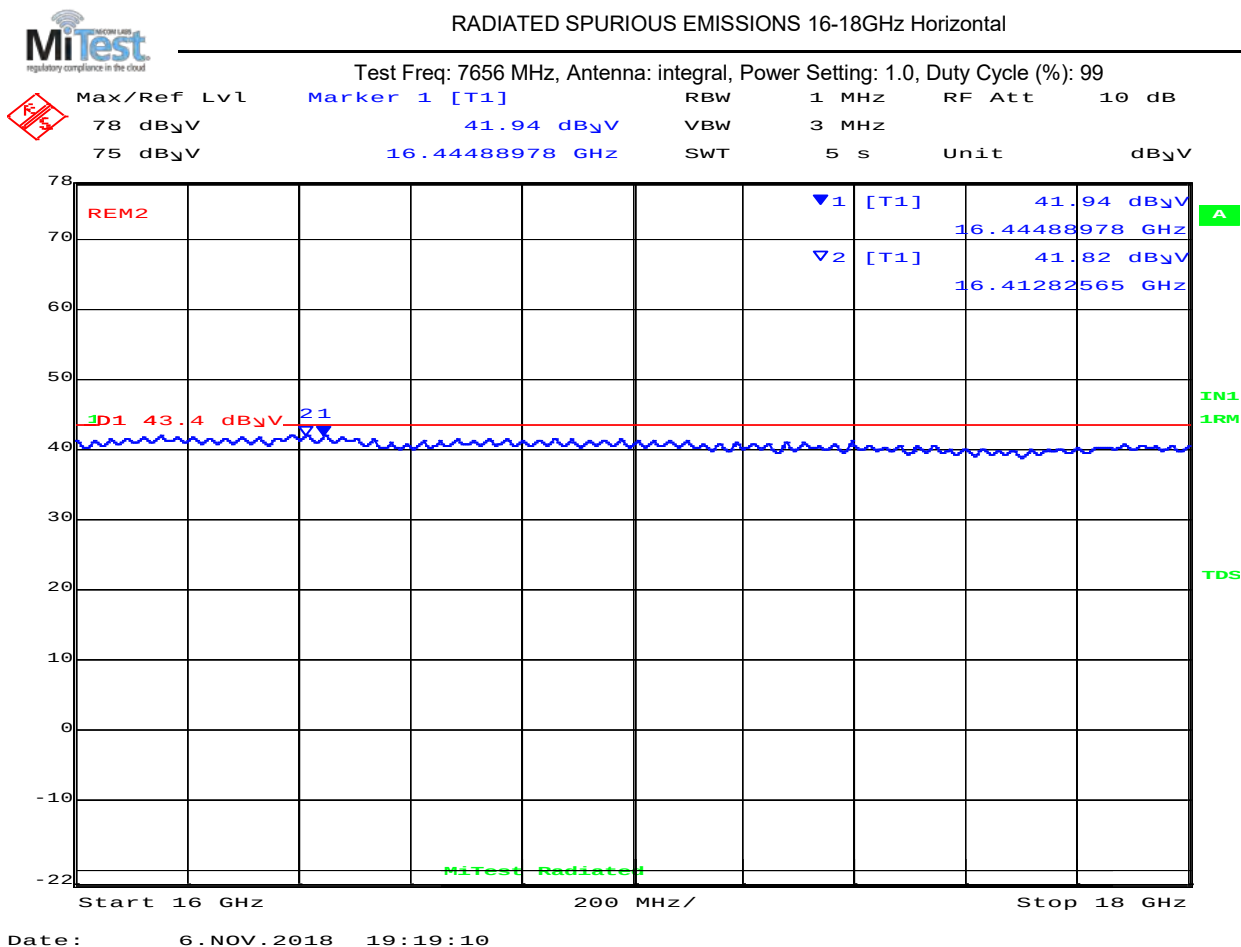


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass
2	16412.83	40.8	Average	Horizontal	150	0	43.4	-2.6	Pass
Test Notes:									

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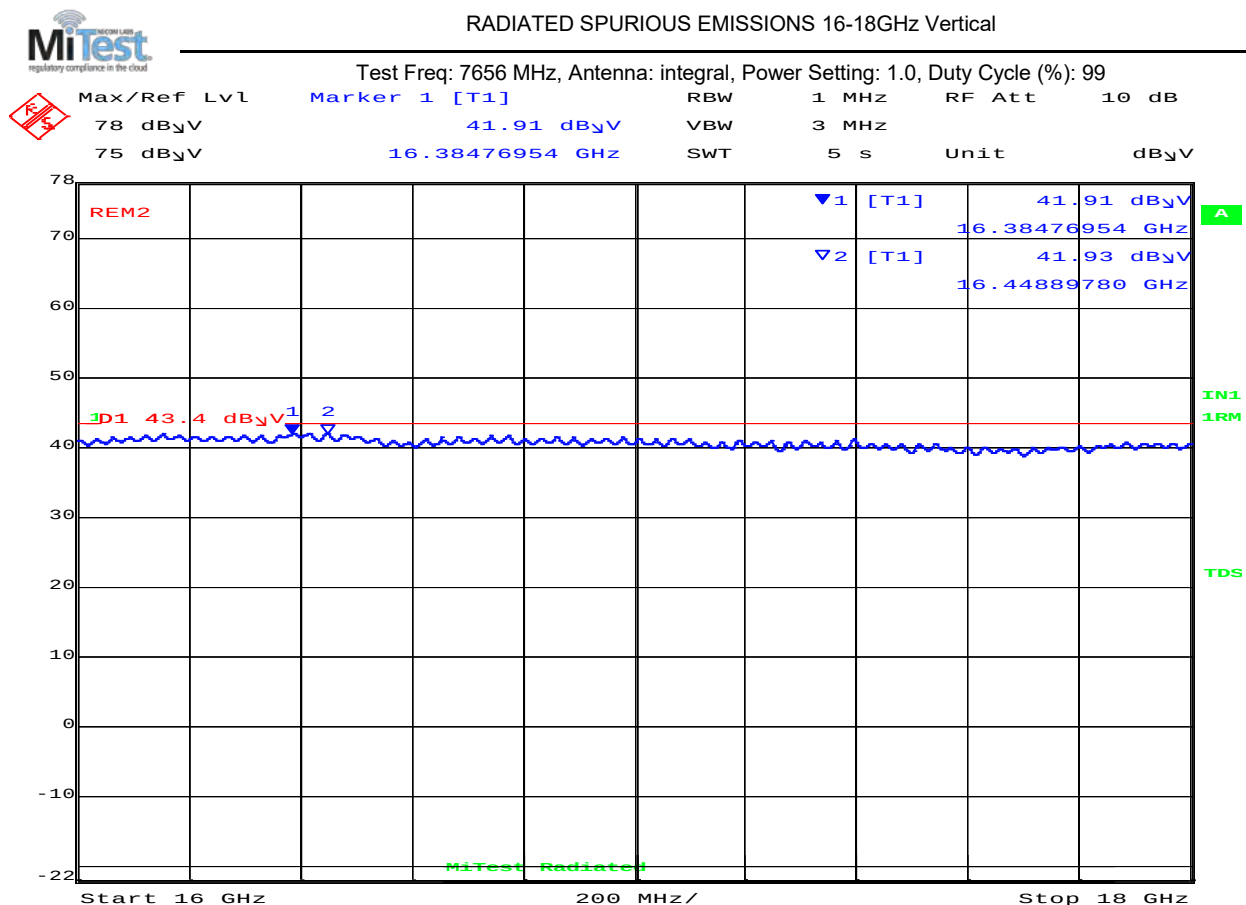


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 6.NOV.2018 19:22:42

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16384.48	40.8	Average	Vertical	150	0	43.4	-2.6	Pass
2	16448.90	40.9	Average	Vertical	150	0	43.4	-2.5	Pass

Test Notes:

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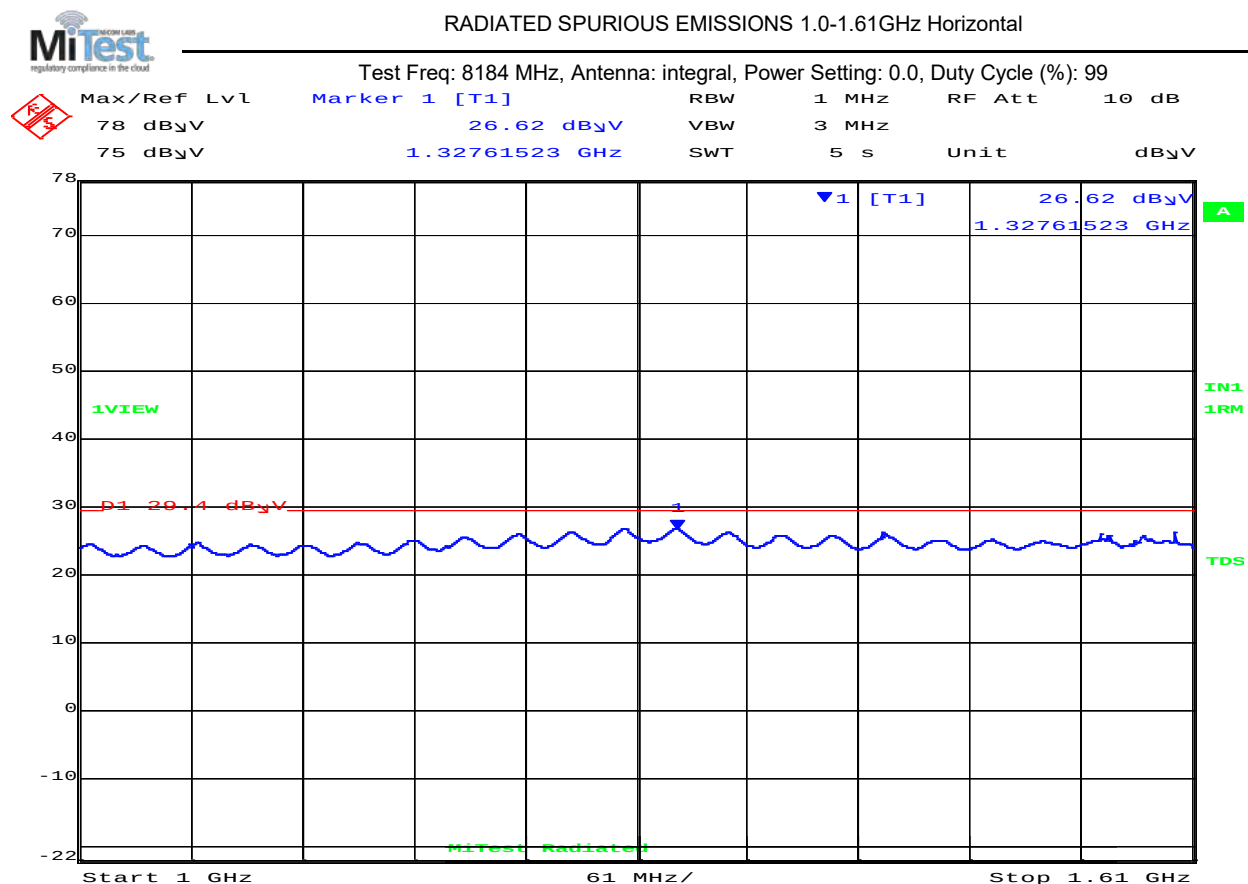
Title: Alereon AL5955, AL5930, AL5934
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8184 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 14:58:28

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1327.62	25.10	Average	Horizontal	150	0	29.4	-4.3	Pass
Test Notes:									

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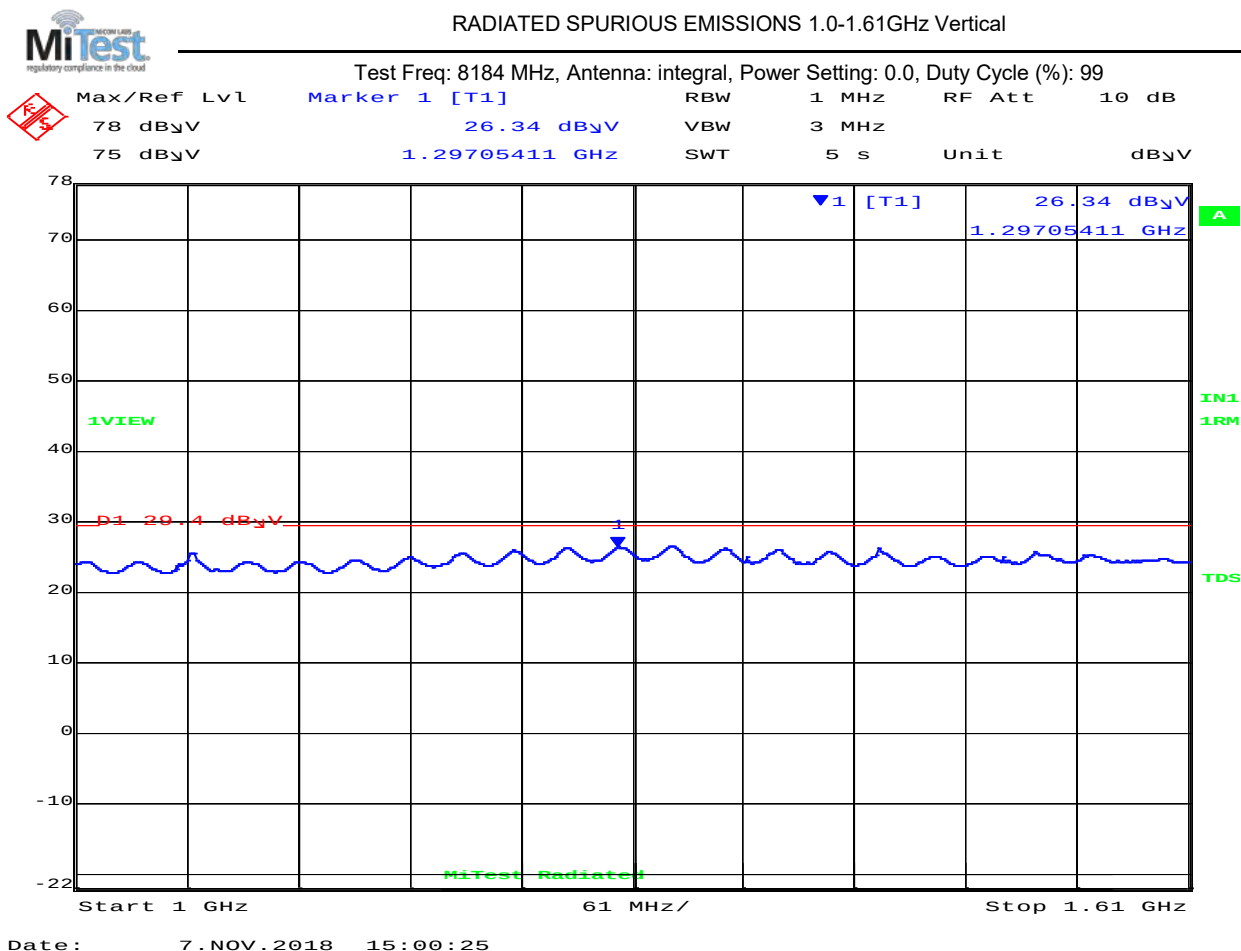


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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
2	1297.05	25.1	Average	Vertical	150	0	29.4	-4.3	Pass
Test Notes:									

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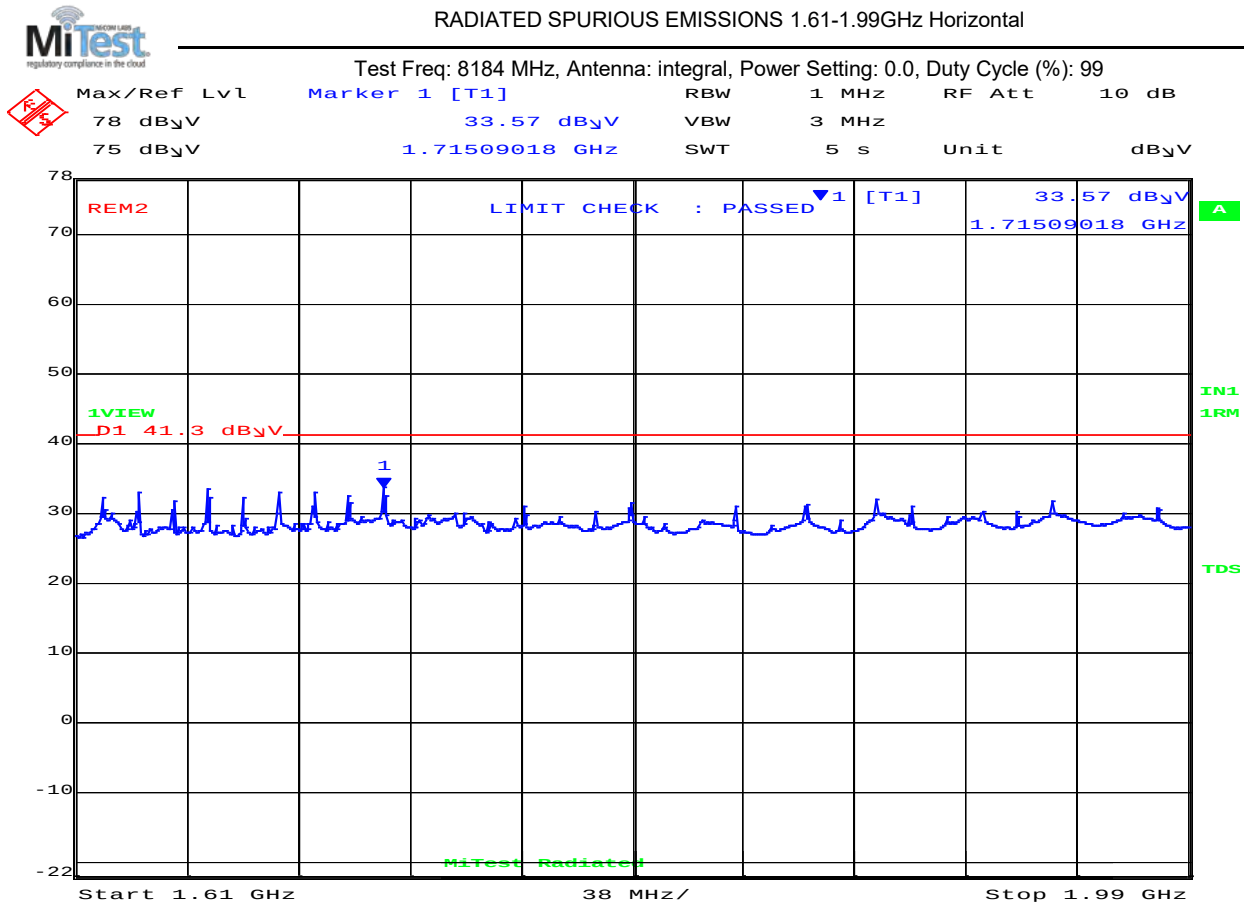


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 08:33:44

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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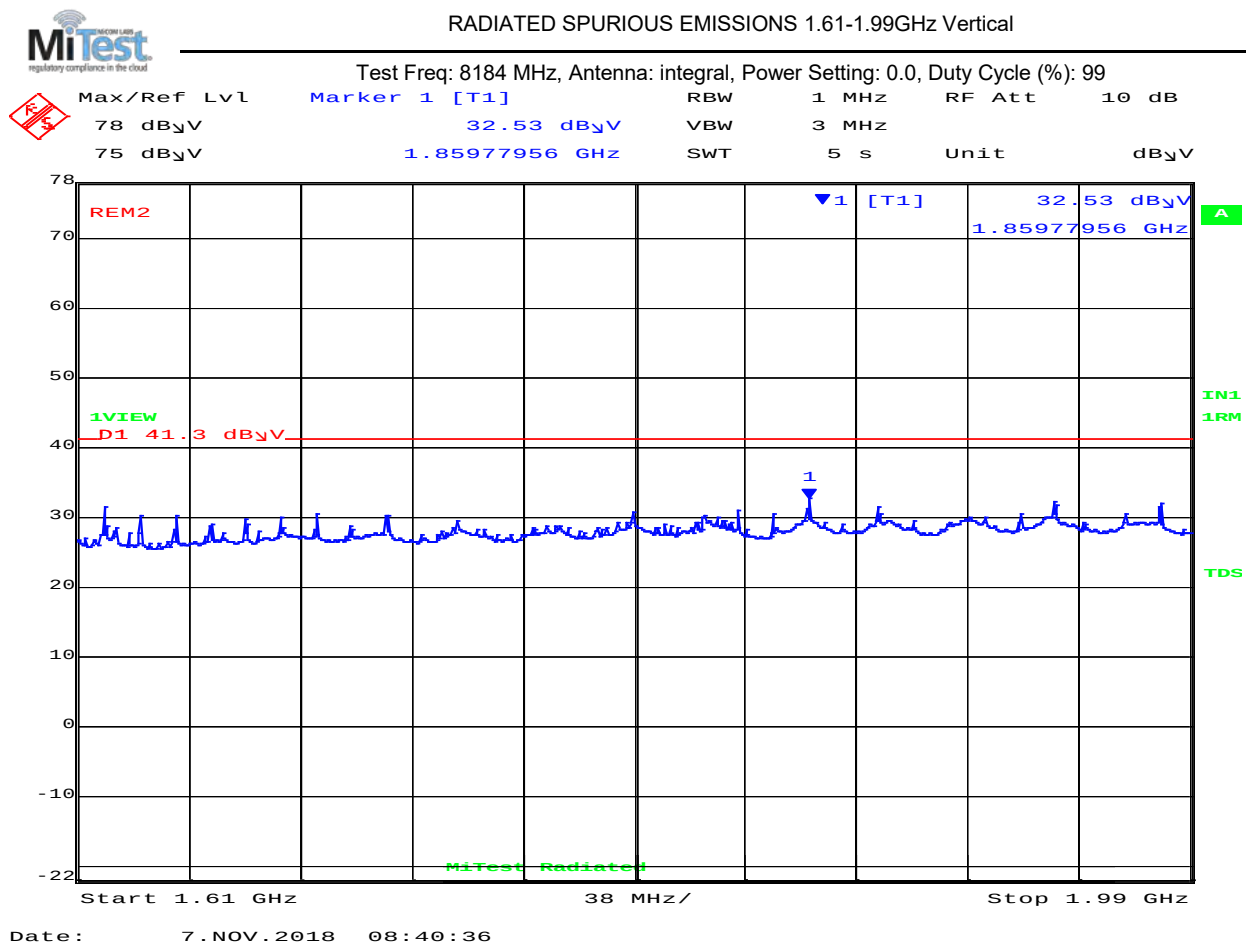


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

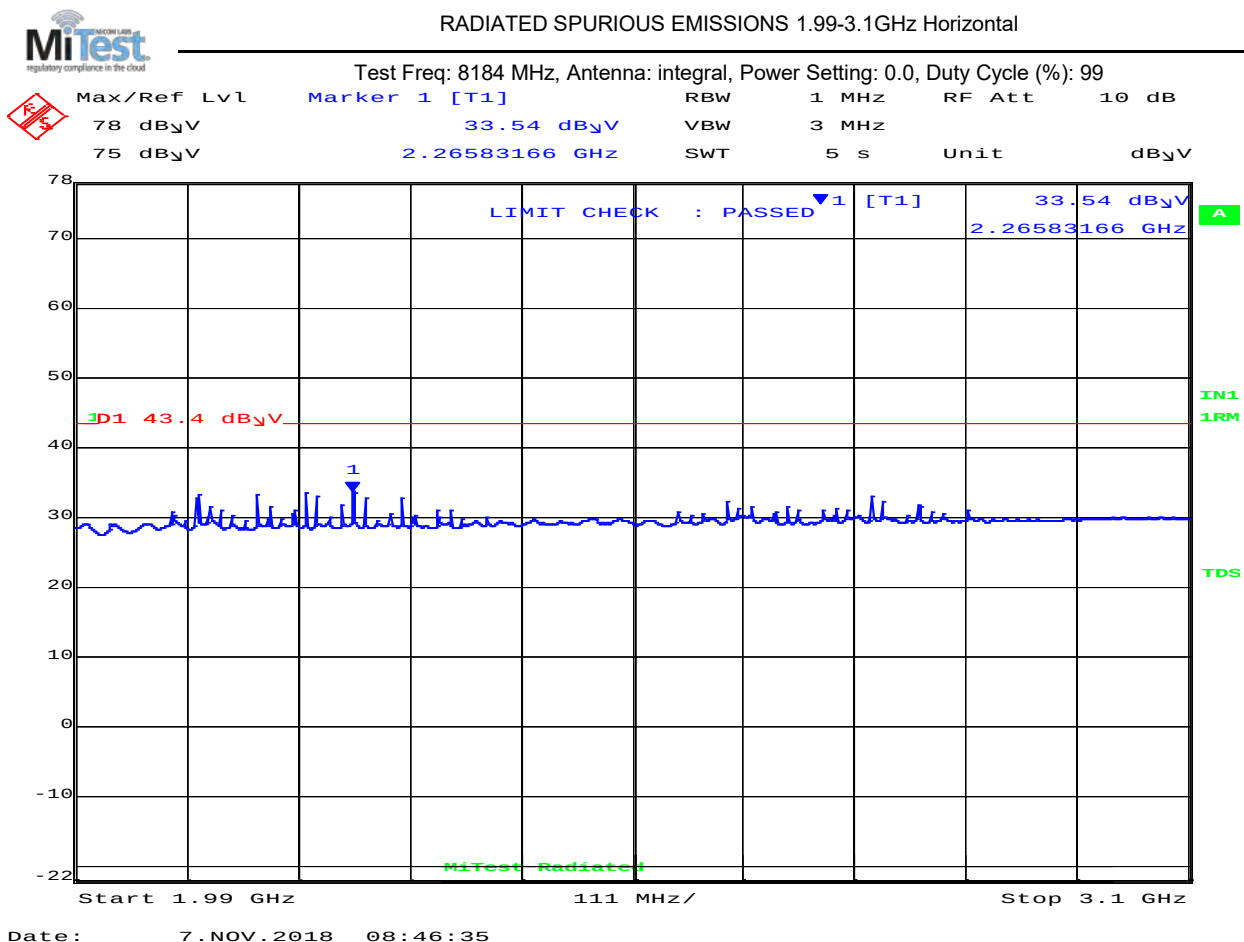


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

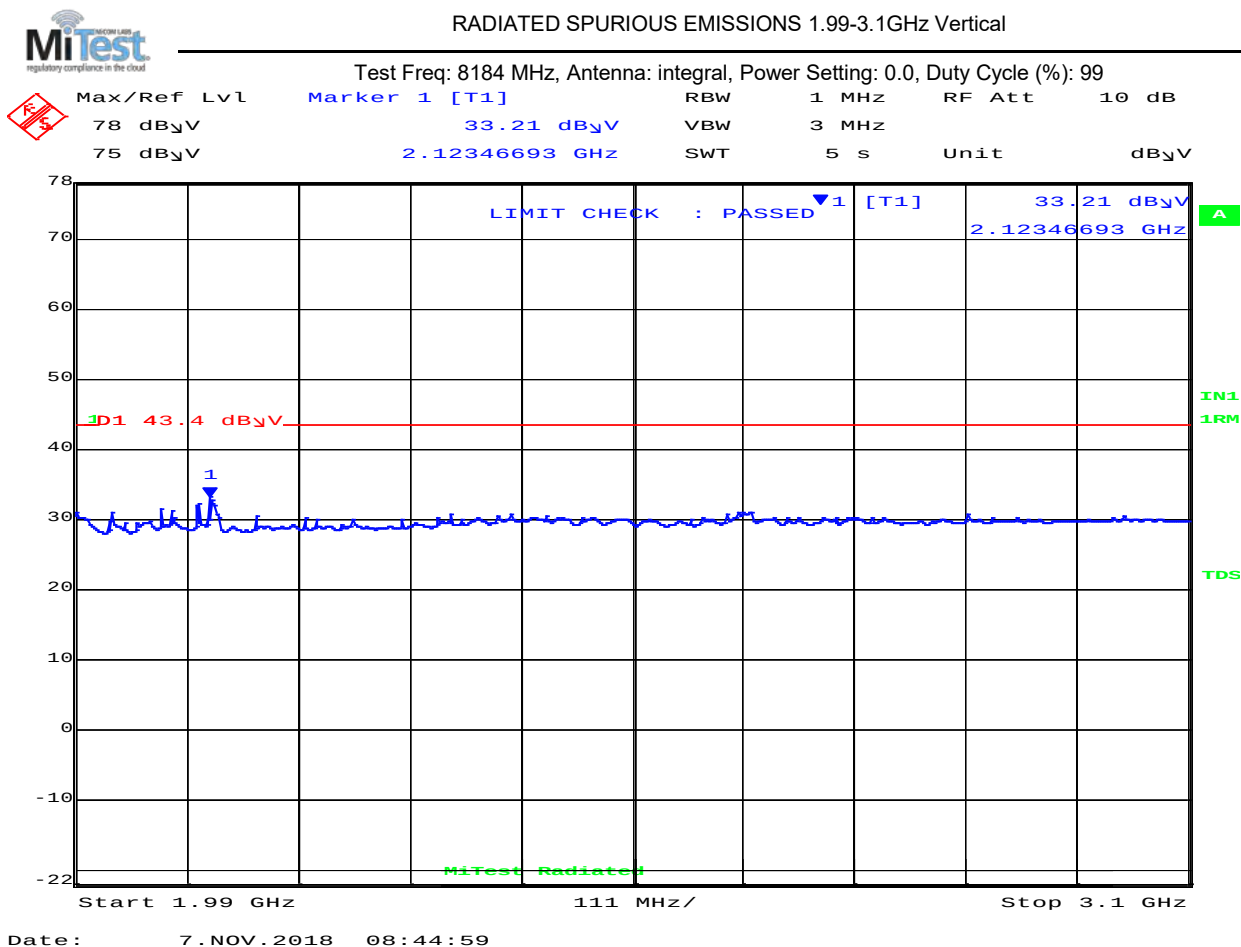


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

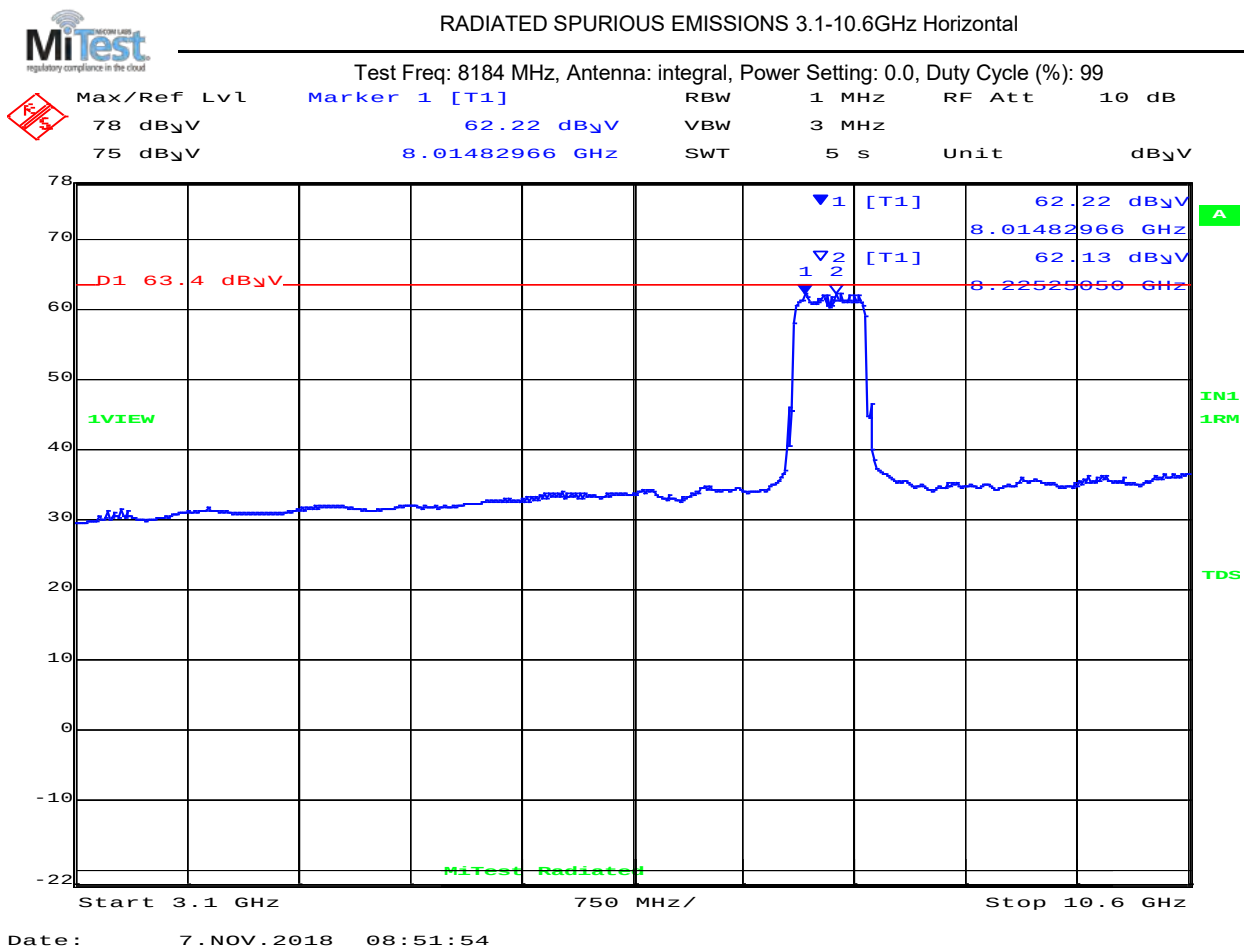


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	8014.83	60.9	Average	Horizontal	150	0	63.4	-2.5	Pass
2	8225.25	60.3	Average	Horizontal	150	0	63.4	-3.1	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

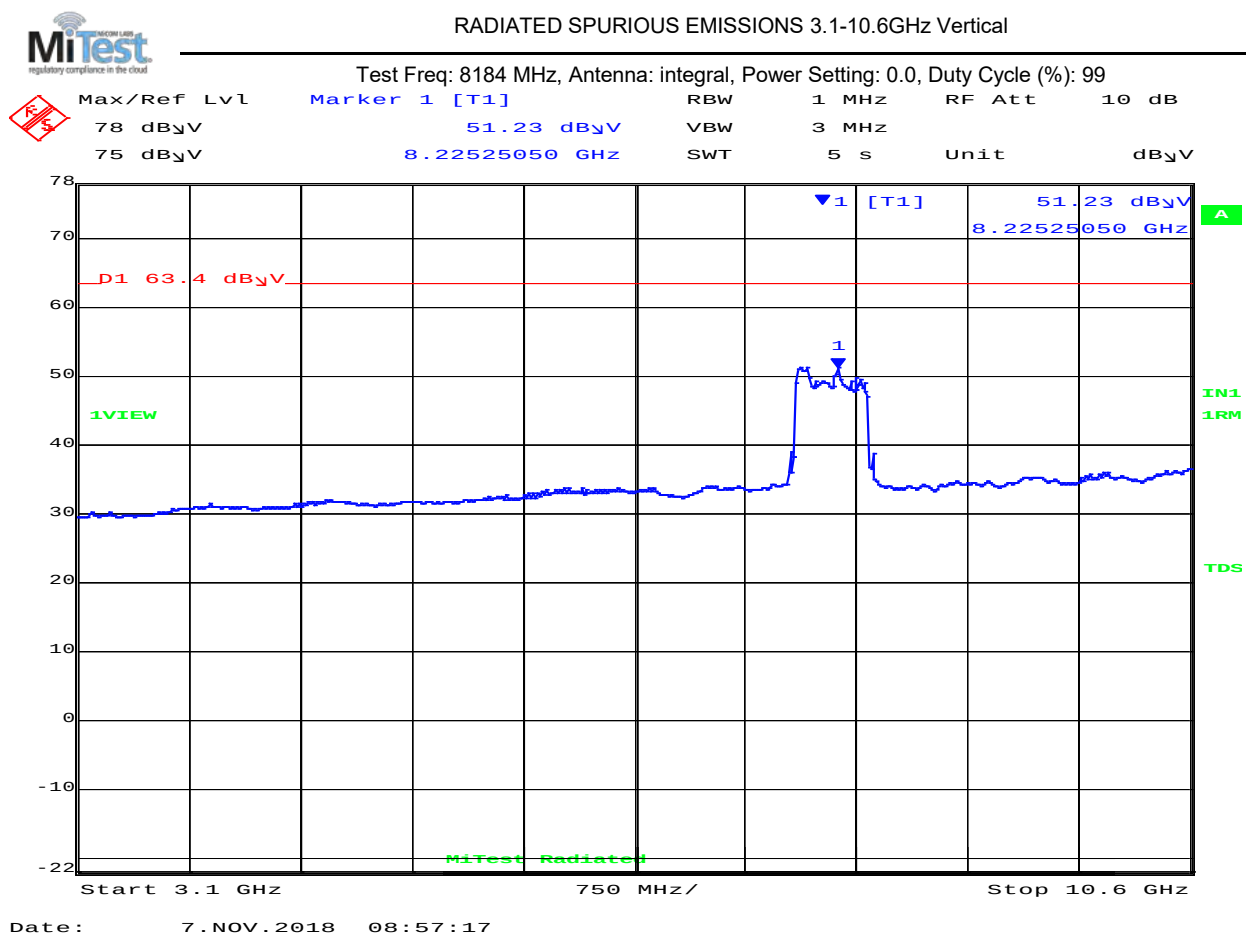


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

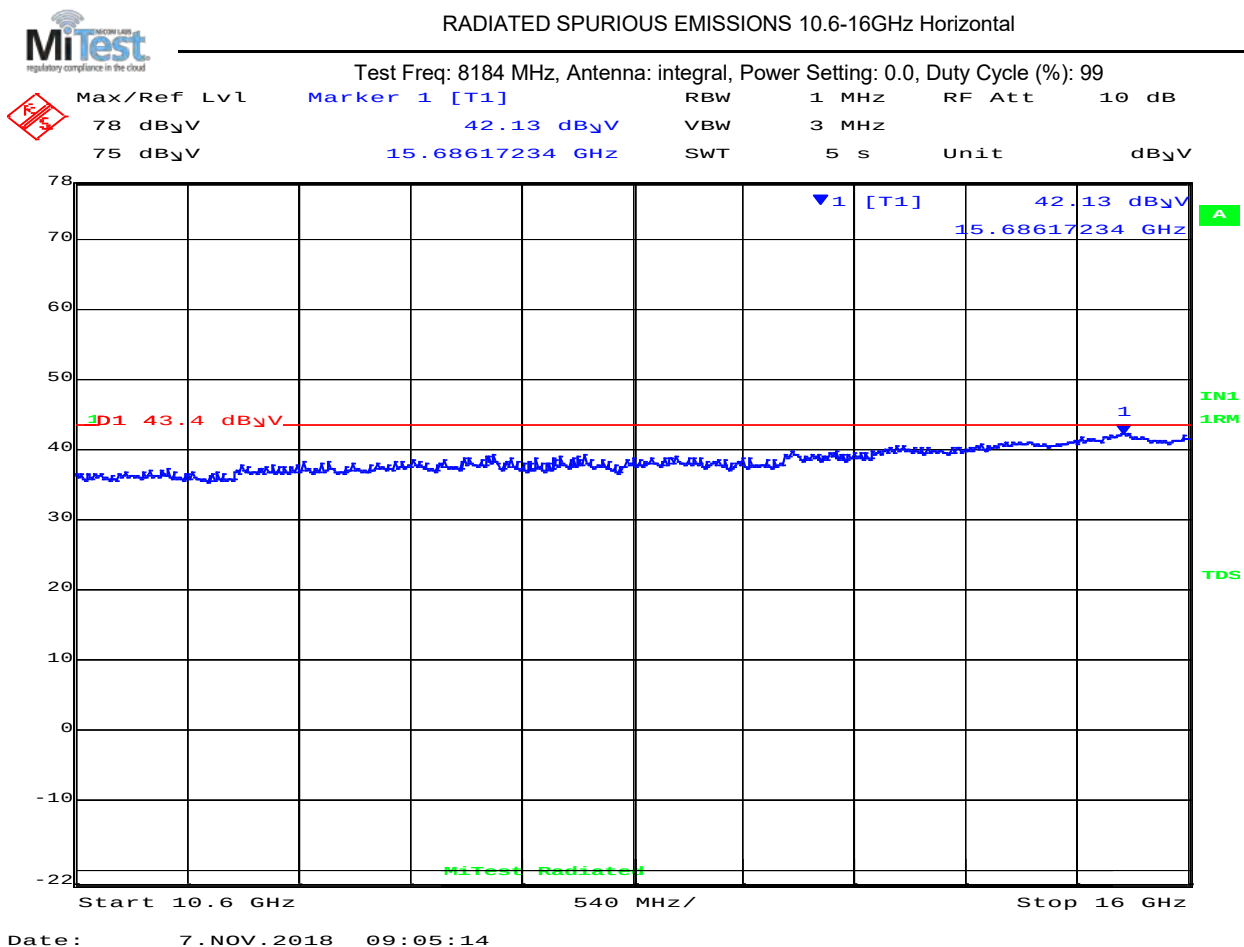


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.6	Average	Horizontal	150	0	43.4	-2.8	Pass

Test Notes:

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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

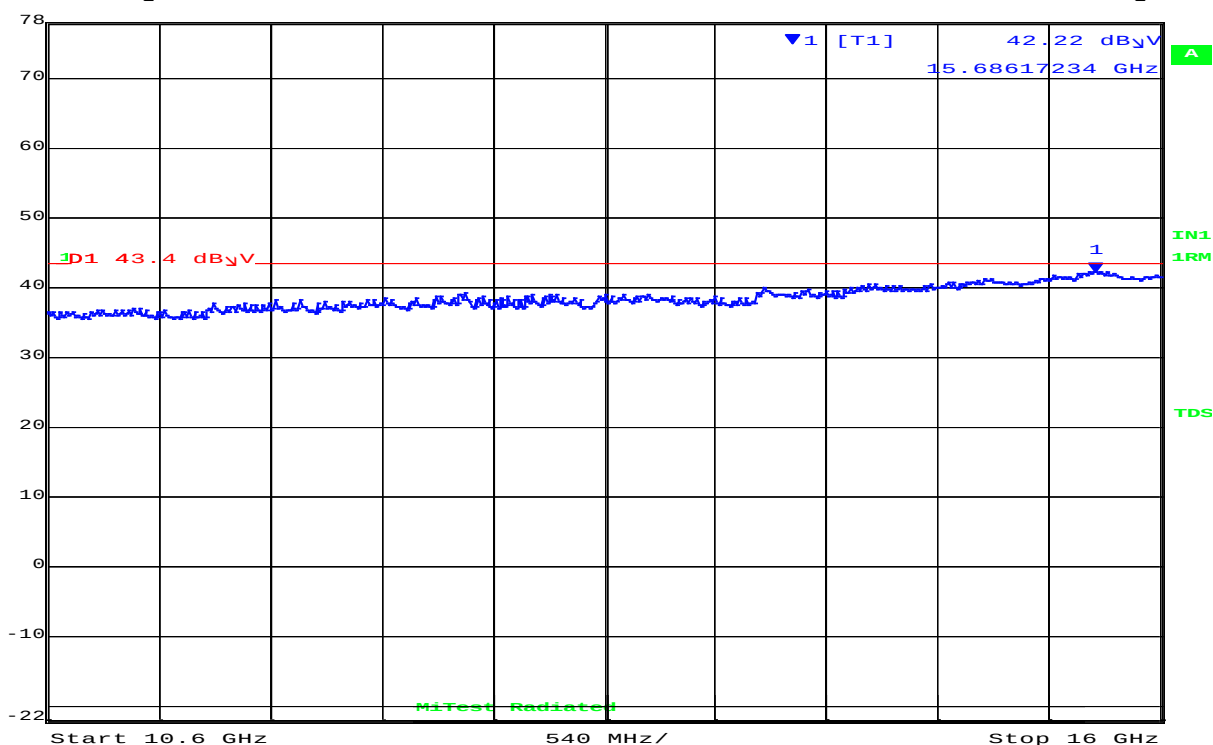
Test Measurement Results

RADIATED SPURIOUS EMISSIONS 10.6-16GHz Vertical



Test Freq: 8184 MHz, Antenna: integral, Power Setting: 0.0, Duty Cycle (%): 99

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
78 dB μ V	42.22 dB μ V	VBW	3 MHz		
75 dB μ V	15.68617234 GHz	SWT	5 s	Unit	dB μ V



Date: 7.NOV.2018 08:58:54

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.17	40.8	Average	Vertical	150	0	43.4	-2.6	Pass

Test Notes:

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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

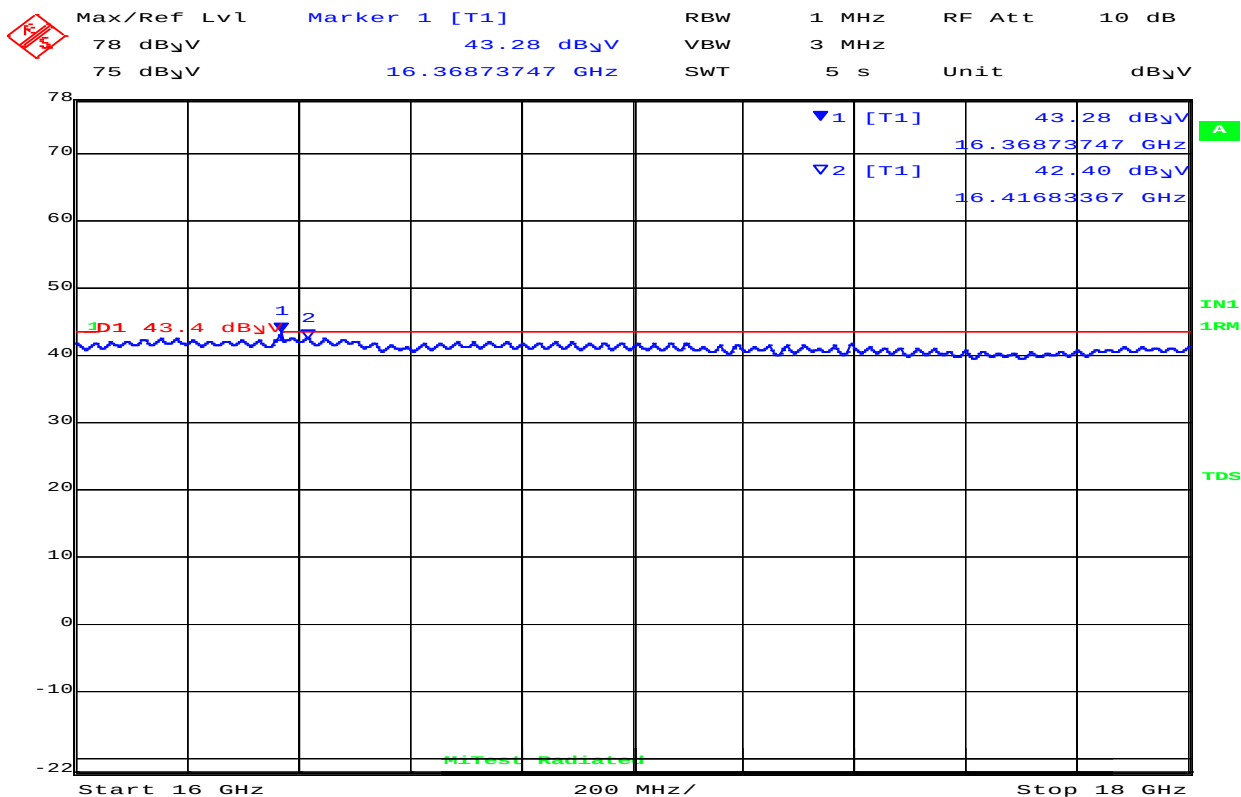
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 16-18GHz Horizontal

Test Freq: 8184 MHz, Antenna: integral, Power Setting: 0.0, Duty Cycle (%): 99



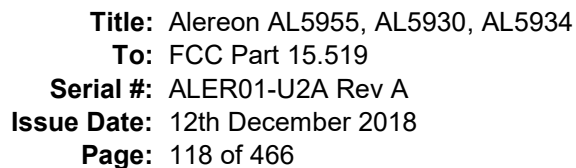
Date: 7. NOV. 2018 09:13:34

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16368.74	40.2	Average	Horizontal	150	0	43.4	-3.2	Pass
2	16416.83	40.7	Average	Horizontal	150	0	43.4	-2.7	Pass

Test Notes:

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

RADIATED SPURIOUS EMISSIONS 16-18GHz Vertical

Test Freq: 8184 MHz, Antenna: integral, Power Setting: 0.0, Duty Cycle (%): 99

Max/Ref Lvl	Marker 2 [T1]	RBW	1 MHz	RF Att	10 dB
78 dBμV	42.36 dBμV	VBW	3 MHz		
75 dBμV	16.44488978 GHz	SWT	5 s	Unit	dBμV

Start 16 GHz 200 MHz/ Stop 18 GHz

Date: 7.NOV.2018 09:16:44

16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.89	40.7	Average	Vertical	150	0	43.4	-2.7	Pass
2	16416.83	39.8	Average	Vertical	150	0	43.4	-3.6	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



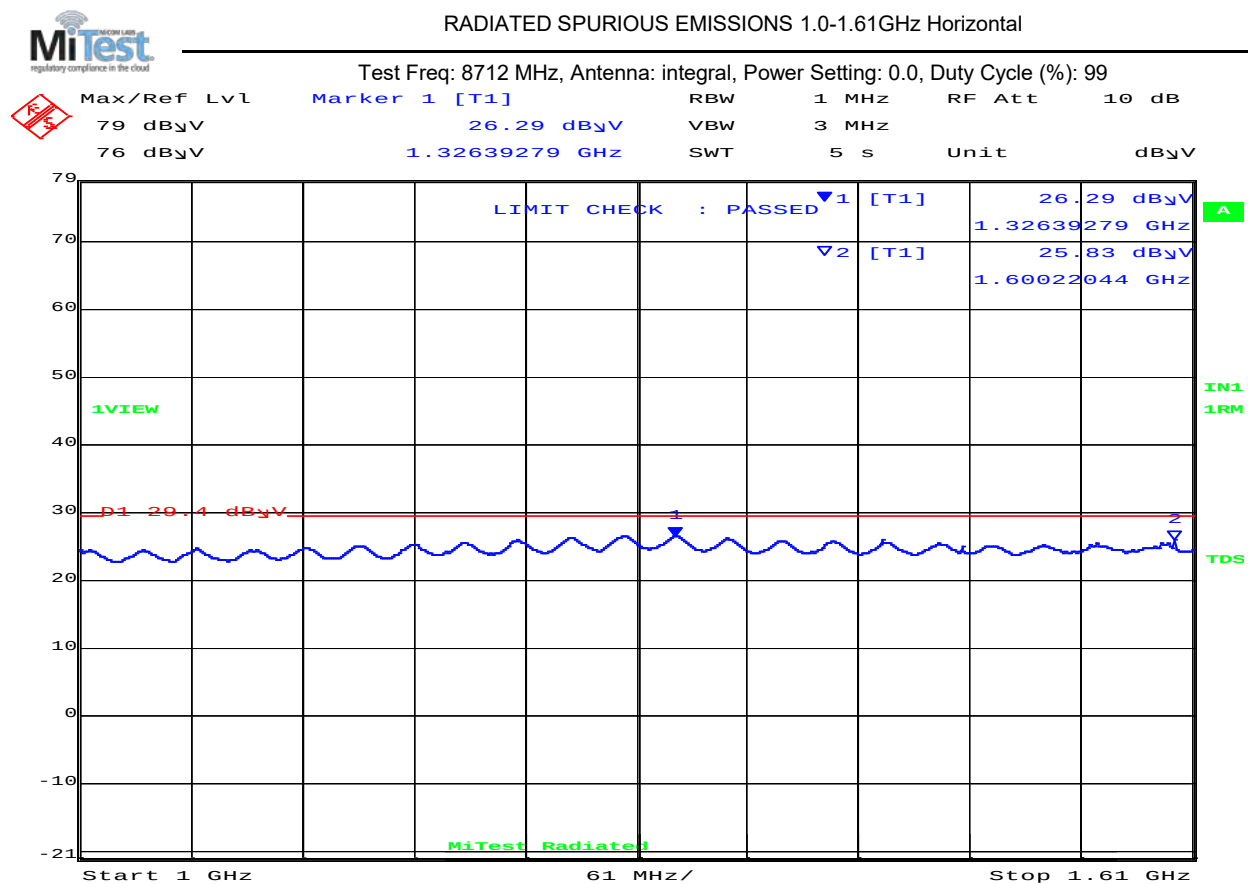
Title: Alereon AL5955, AL5930, AL5934
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8712 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 15:54:39

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.39	25.10	Average	Horizontal	150	0	29.4	-4.3	Pass
2	1600.22	25.70	Average	Horizontal	150	0	29.4	-3.7	Pass

Test Notes:

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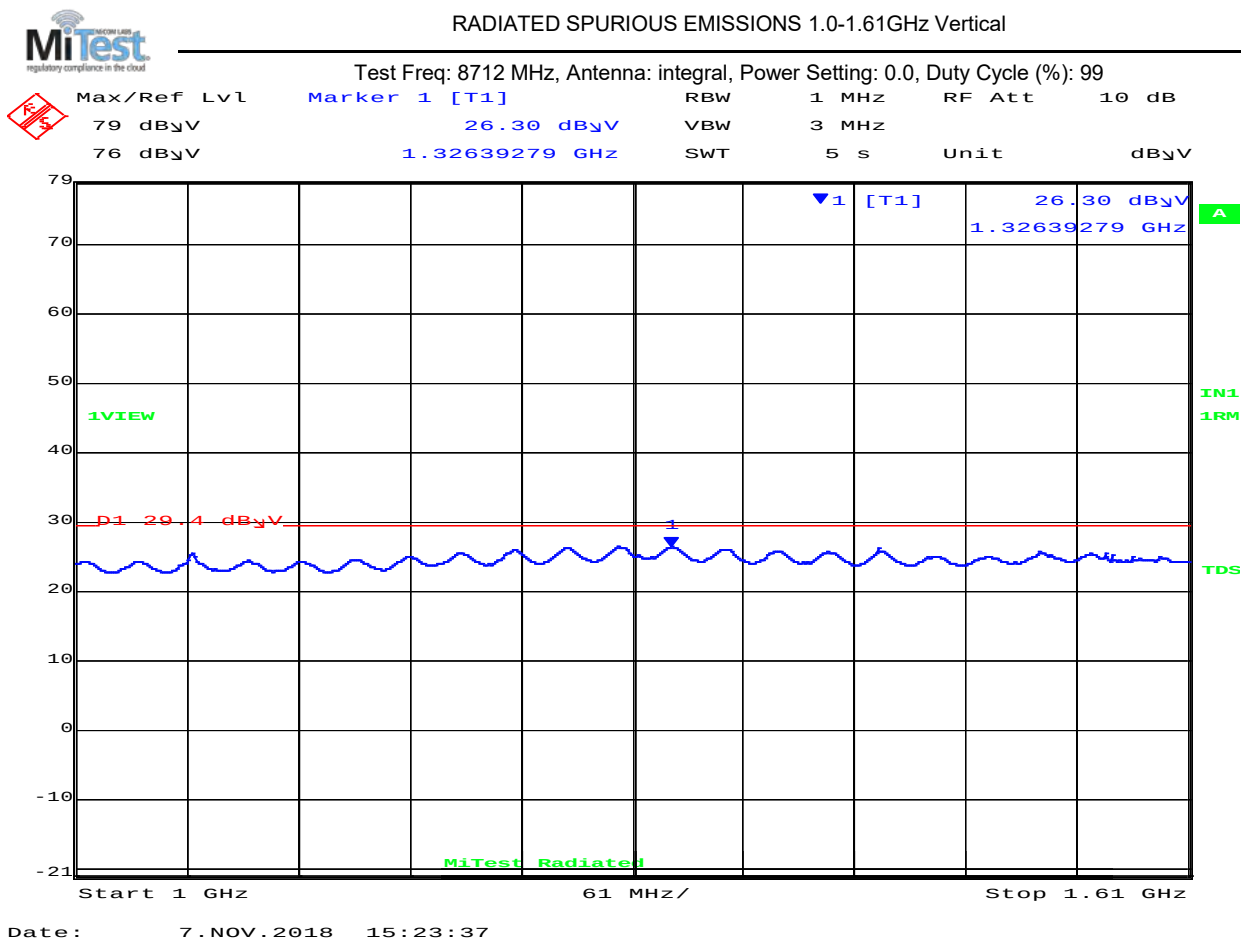


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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.39	24.9	Average	Vertical	150	0	29.4	-4.5	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

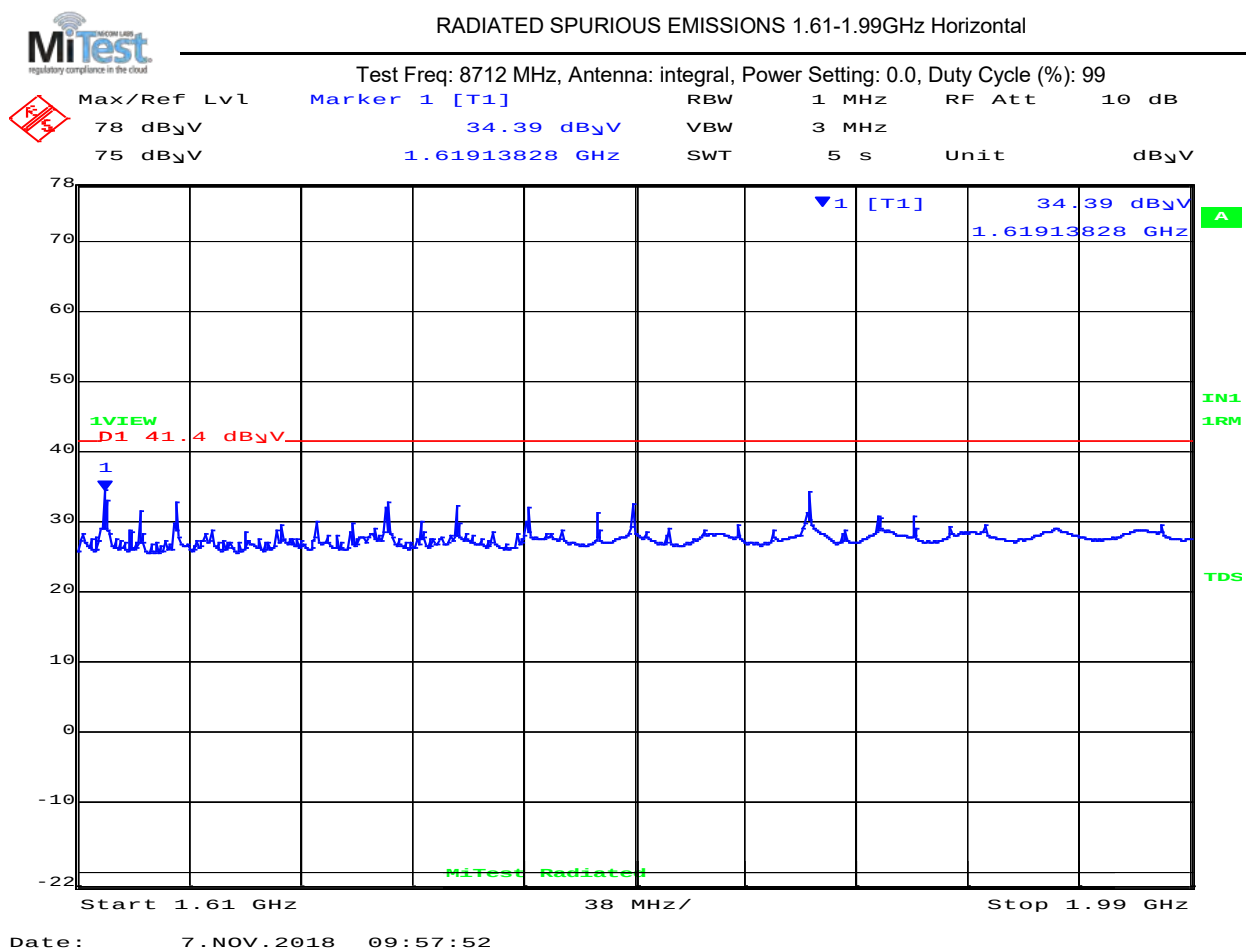


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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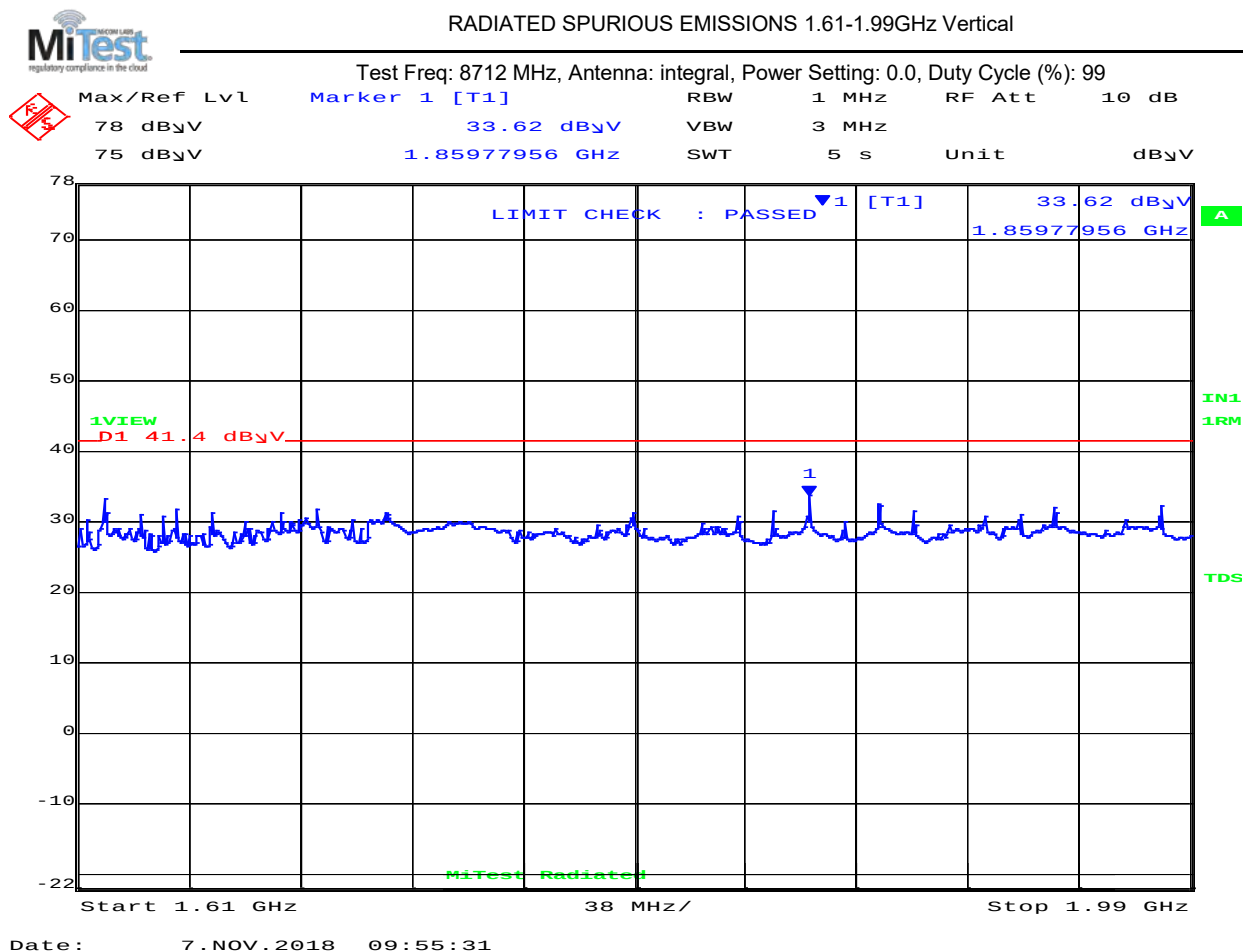


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

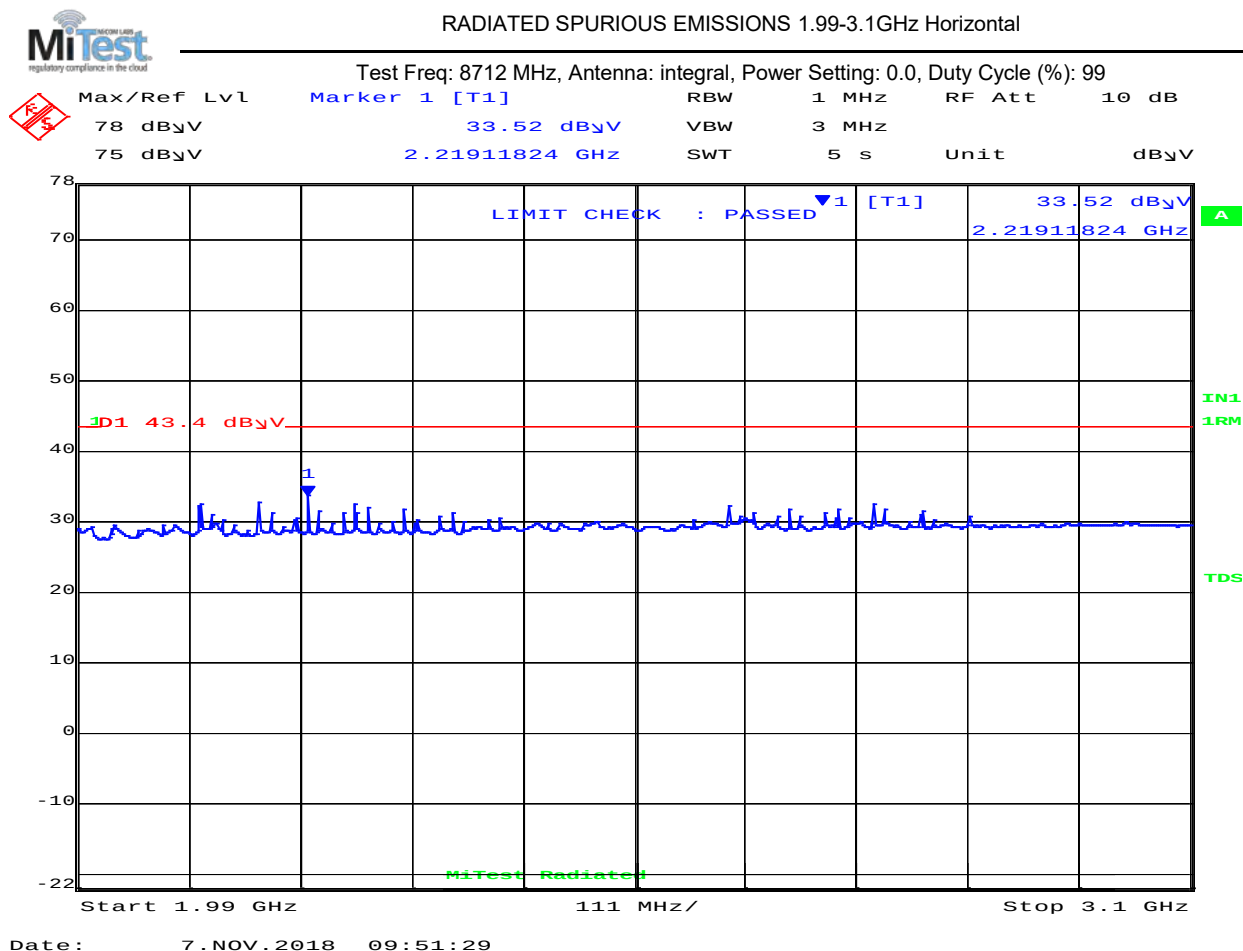


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

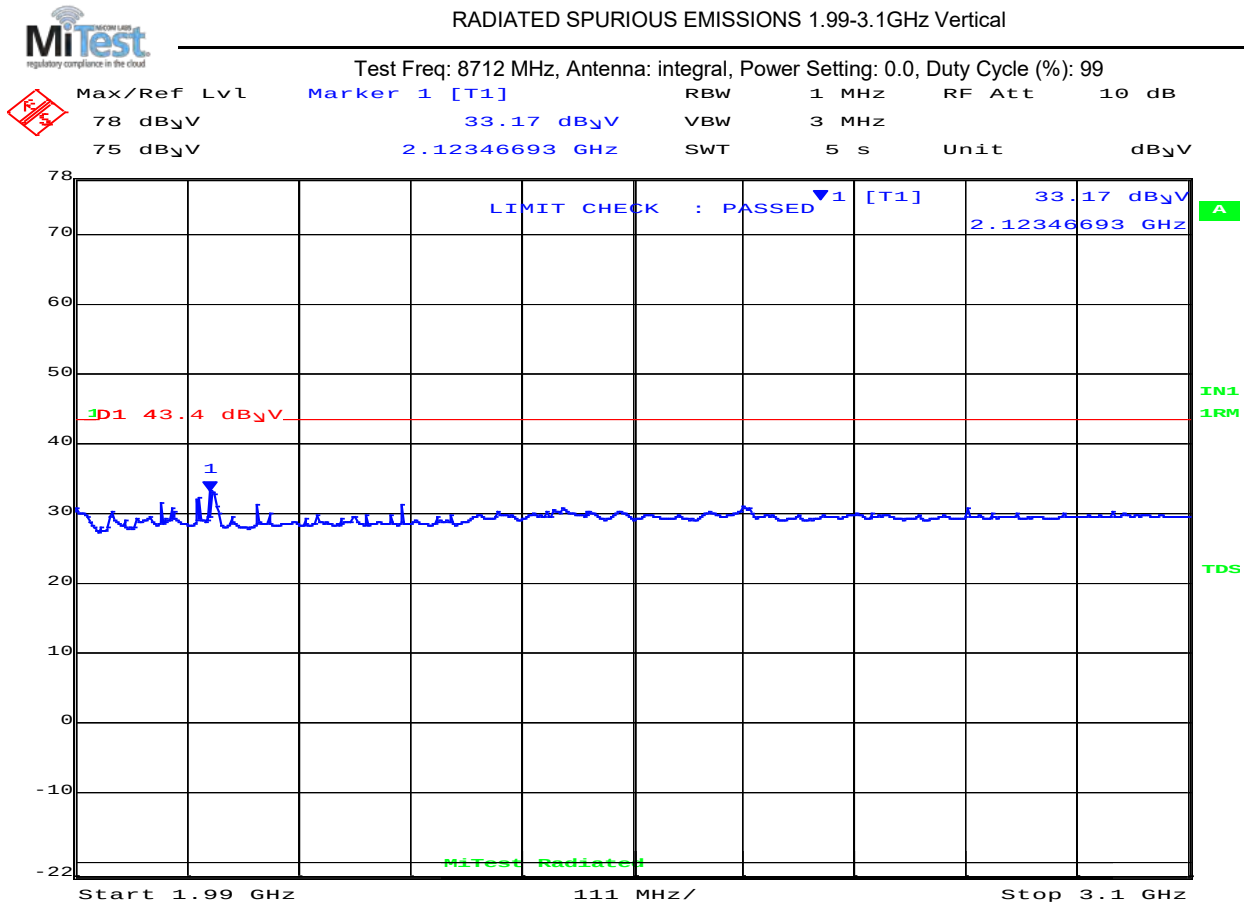


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 09:53:49

1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

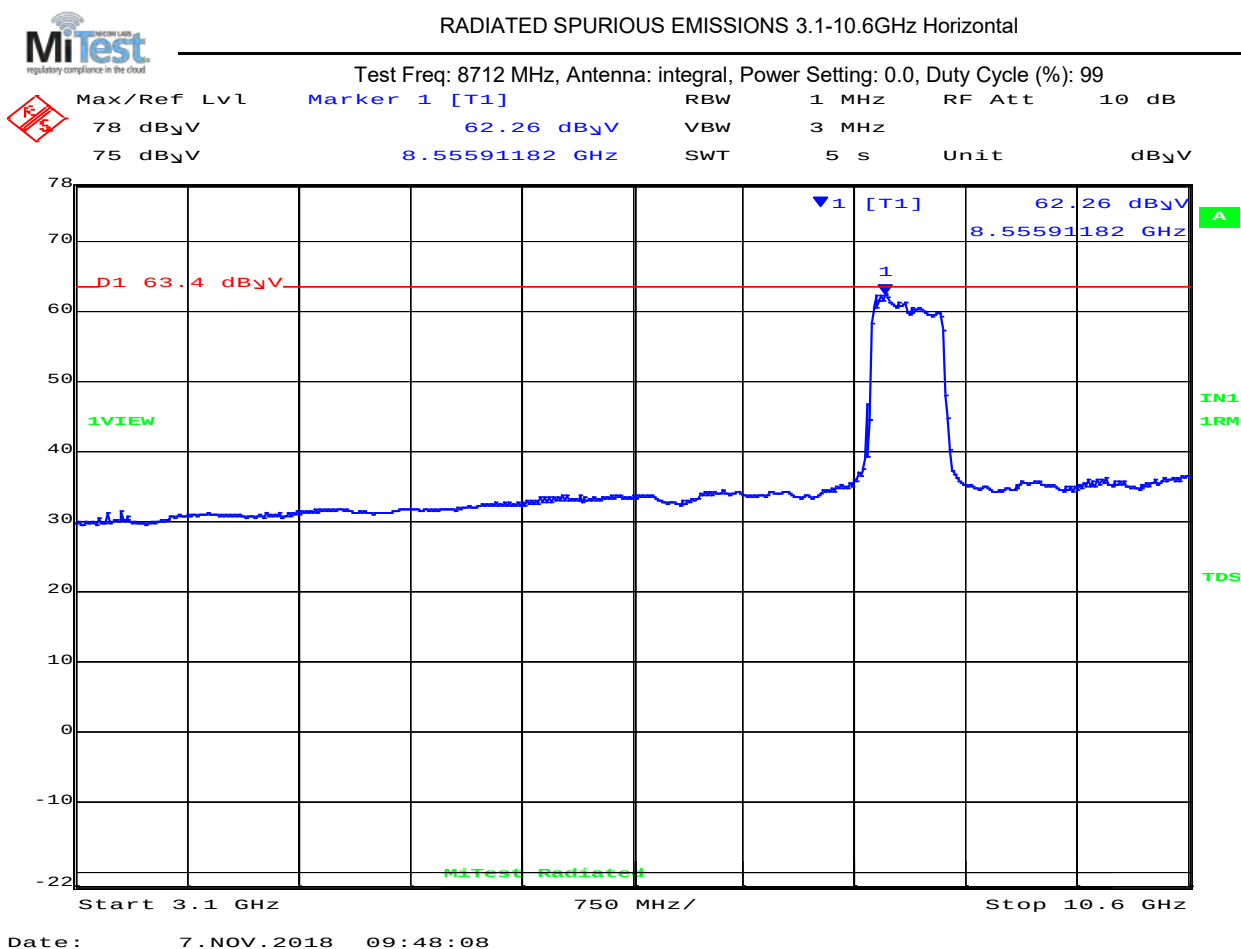


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	8555.91	61.7	Average	Horizontal	150	0	43.4	-1.7	Pass

Test Notes:

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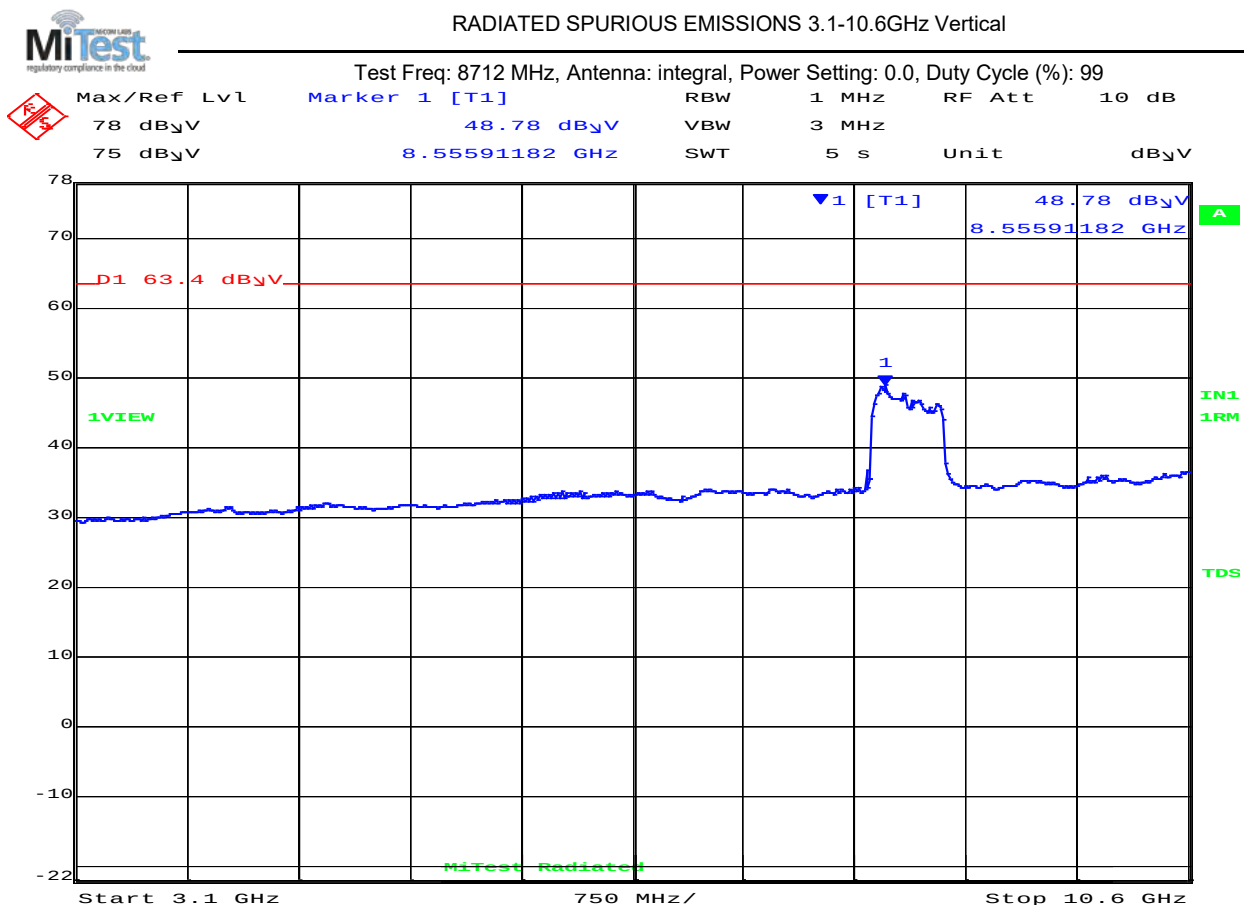


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 09:45:56

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals Found within 6 dB of Limit									
Test Notes:									

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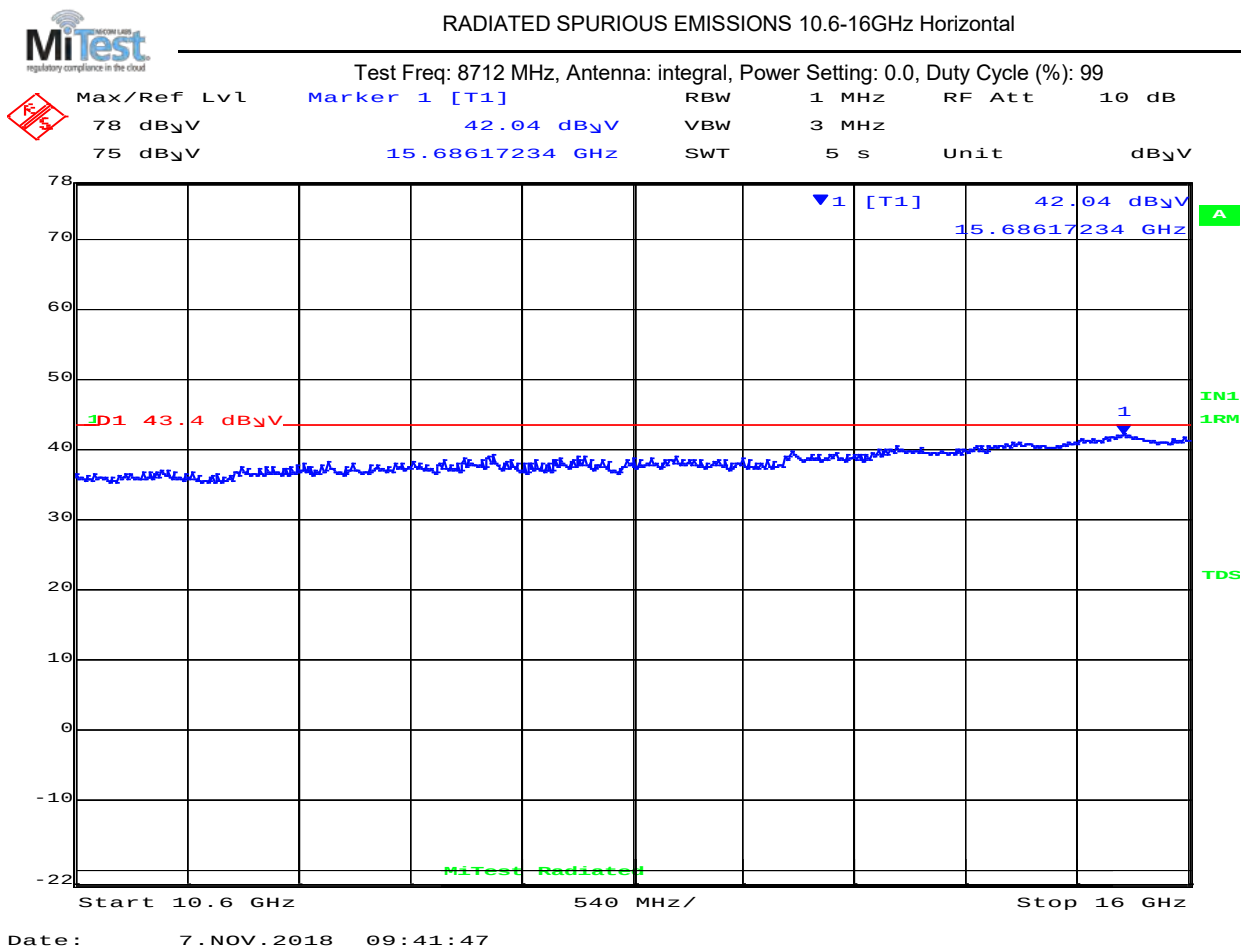


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	40.4	Average	Horizontal	150	0	43.4	-3.0	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

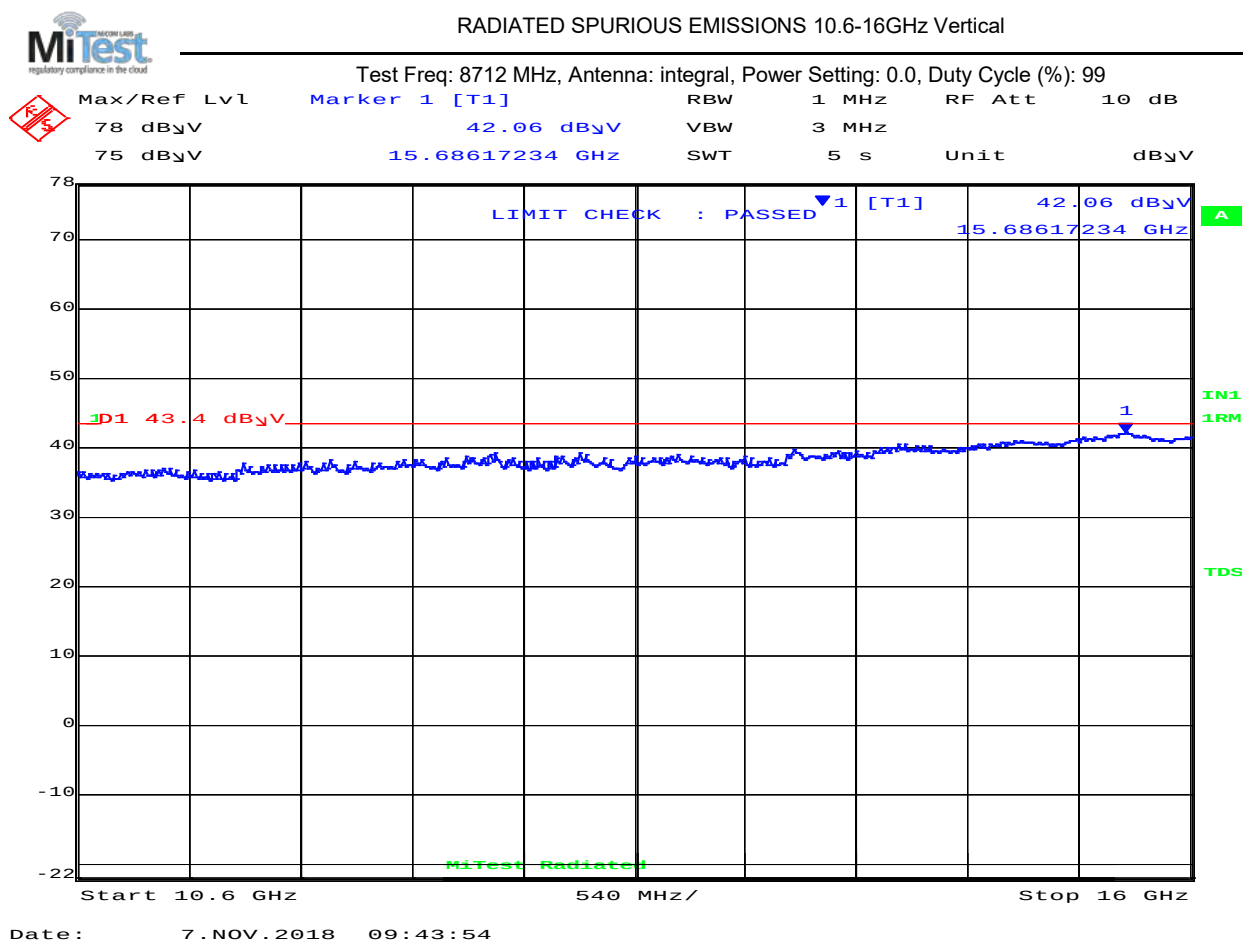


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.17	40.5	Average	Vertical	150	0	43.4	-2.9	Pass

Test Notes:

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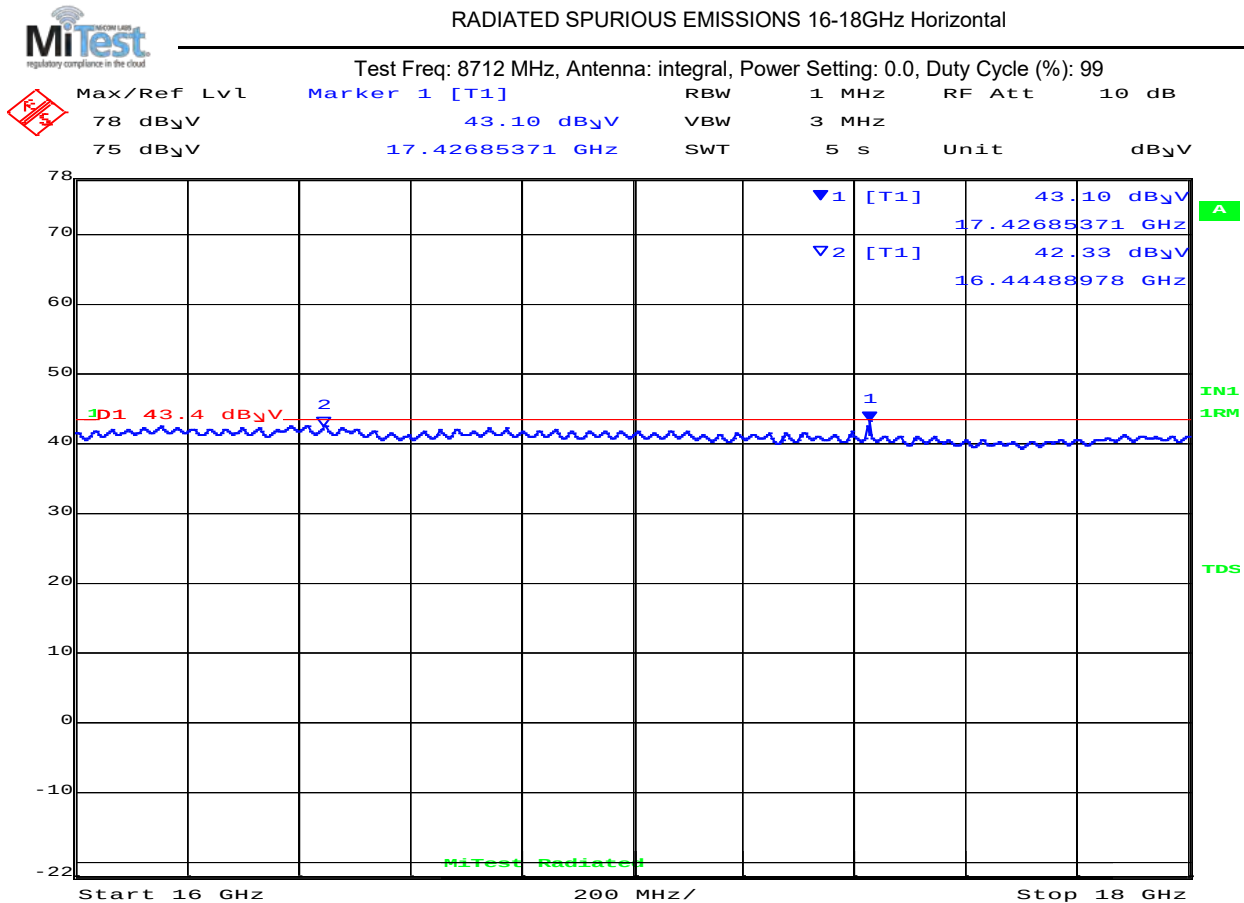


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 09:26:25

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	17426.85	41.3	Average	Horizontal	150	0	43.4	-2.1	Pass
2	16444.89	39.8	Average	Horizontal	150	0	43.4	-3.6	Pass

Test Notes:

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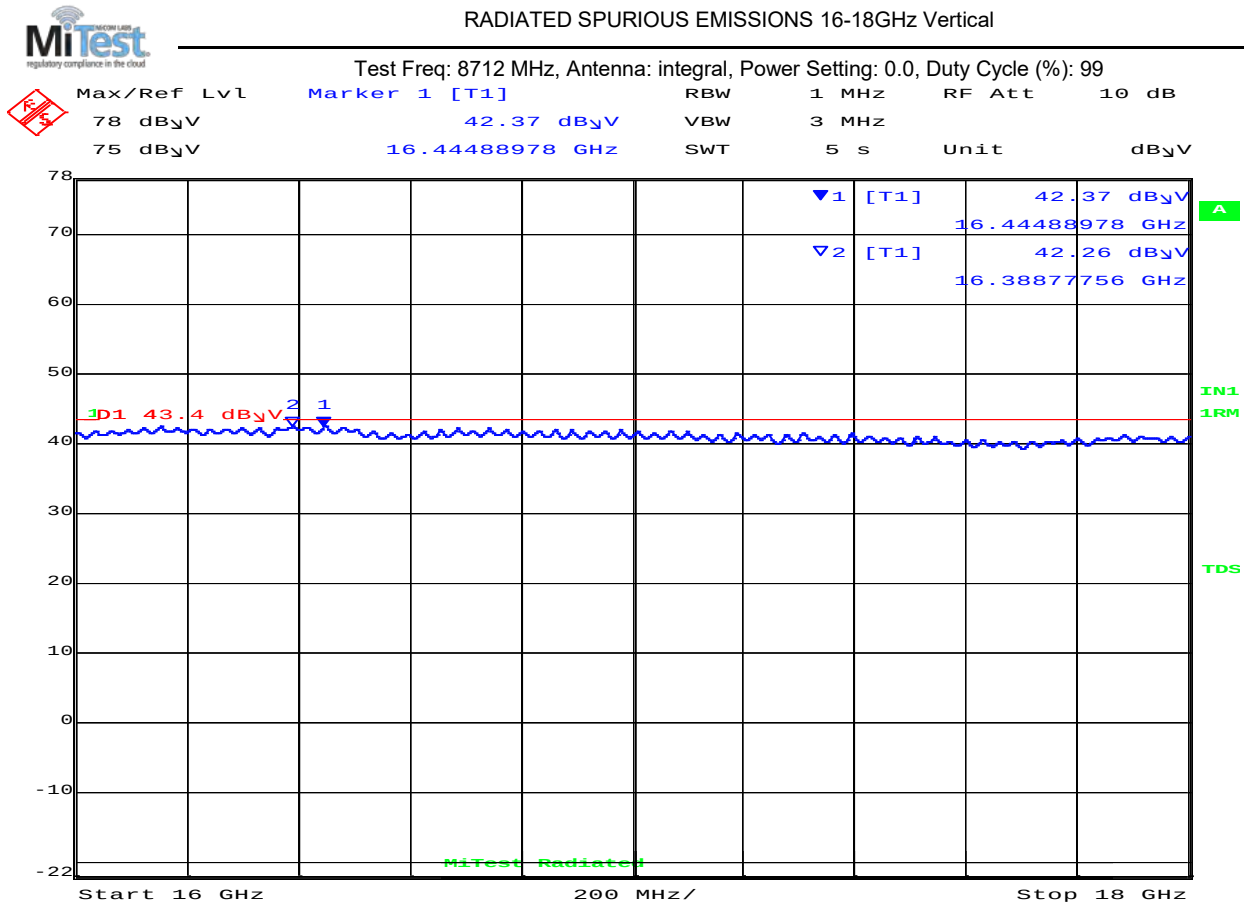


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 09:23:11

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.89	40.9	Average	Vertical	150	0	43.4	-2.5	Pass
2	16388.78	40.8	Average	Vertical	150	0	29.4	-2.6	Pass

Test Notes:

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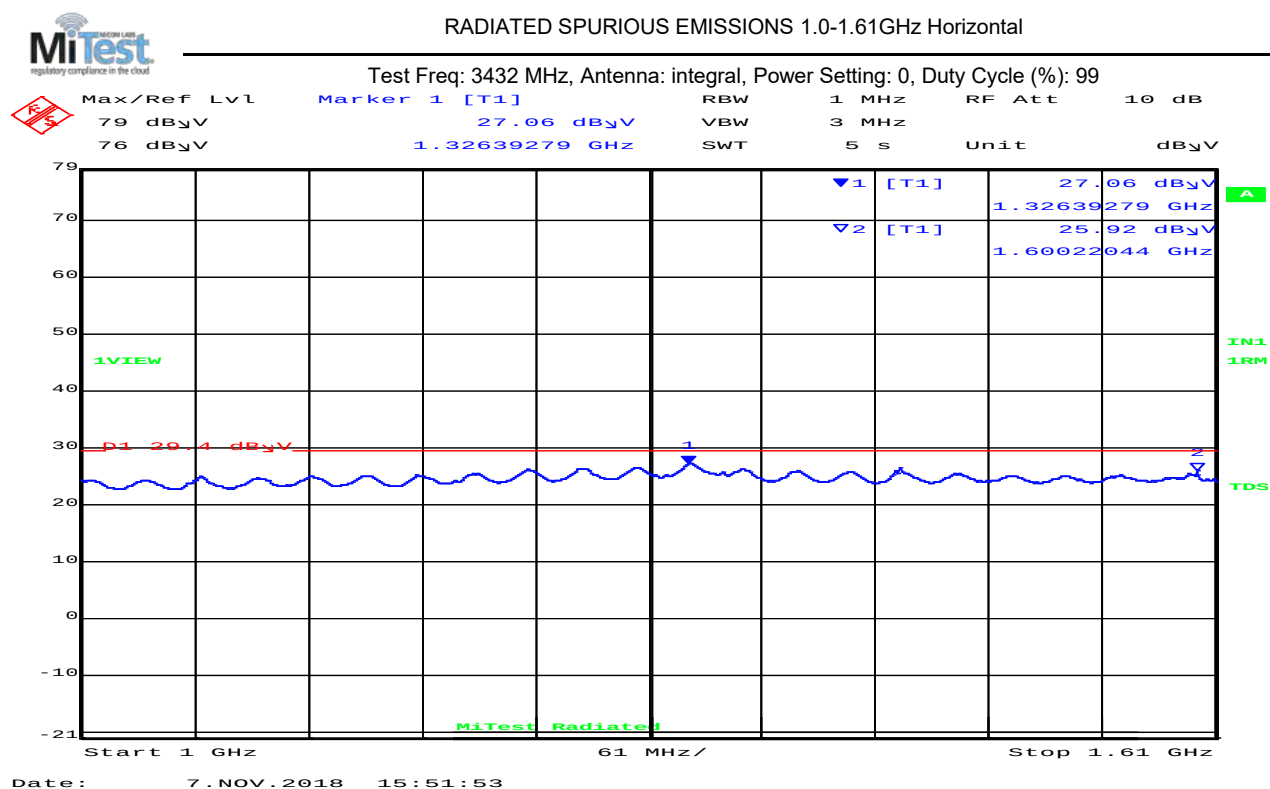
9.4.1.2. Camouflage AL5955

3432 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1326.39	25.10	Average	Horizontal	150	0	29.4	-4.3	Pass
2	1600.22	25.60	Average	Horizontal	150	0	29.4	-3.8	Pass

Test Notes:

Laptop Removed

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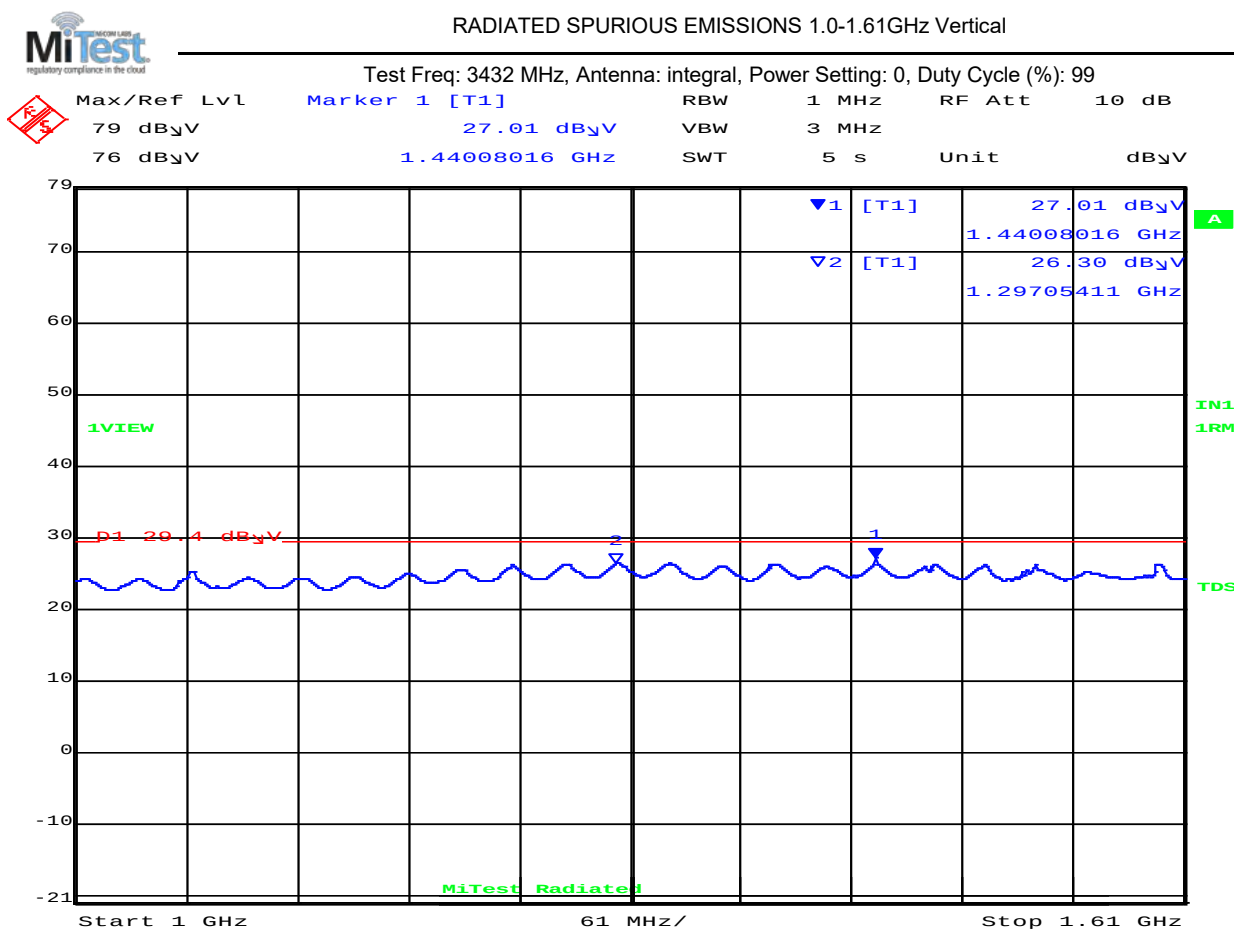


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results

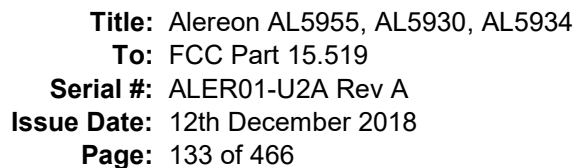


Date: 7.NOV.2018 15:58:29

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1440.08	25.90	Average	Vertical	150	0	29.4	-3.5	Pass
2	1297.05	24.80	Average	Vertical	150	0	29.4	-4.6	Pass

Test Notes:
Laptop Removed

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

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regulatory compliance in the cloud

Test Freq: 3432 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99



1610.00–1990.00MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop Removed									

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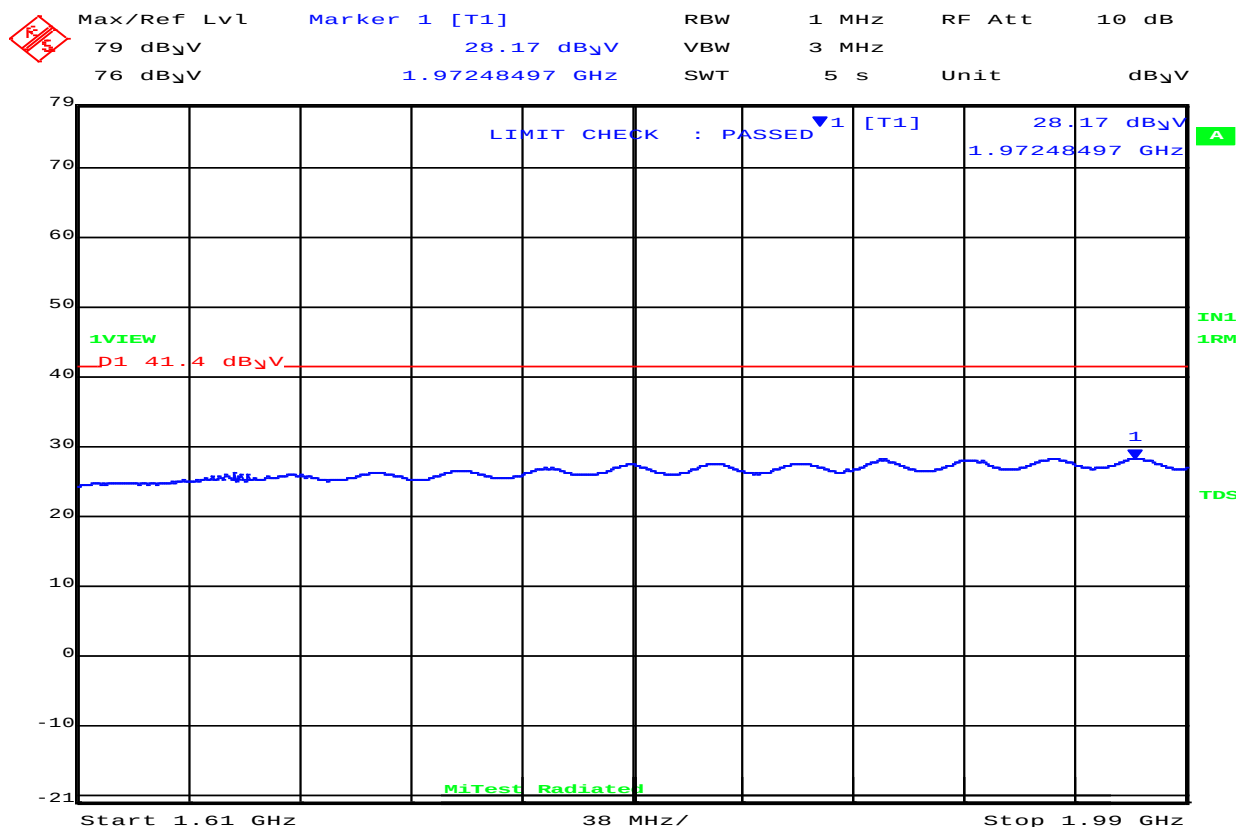
Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



, Power Setting: 0, Duty Cycle (%): 99



Date: 7.NOV.2018 18:42:50

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

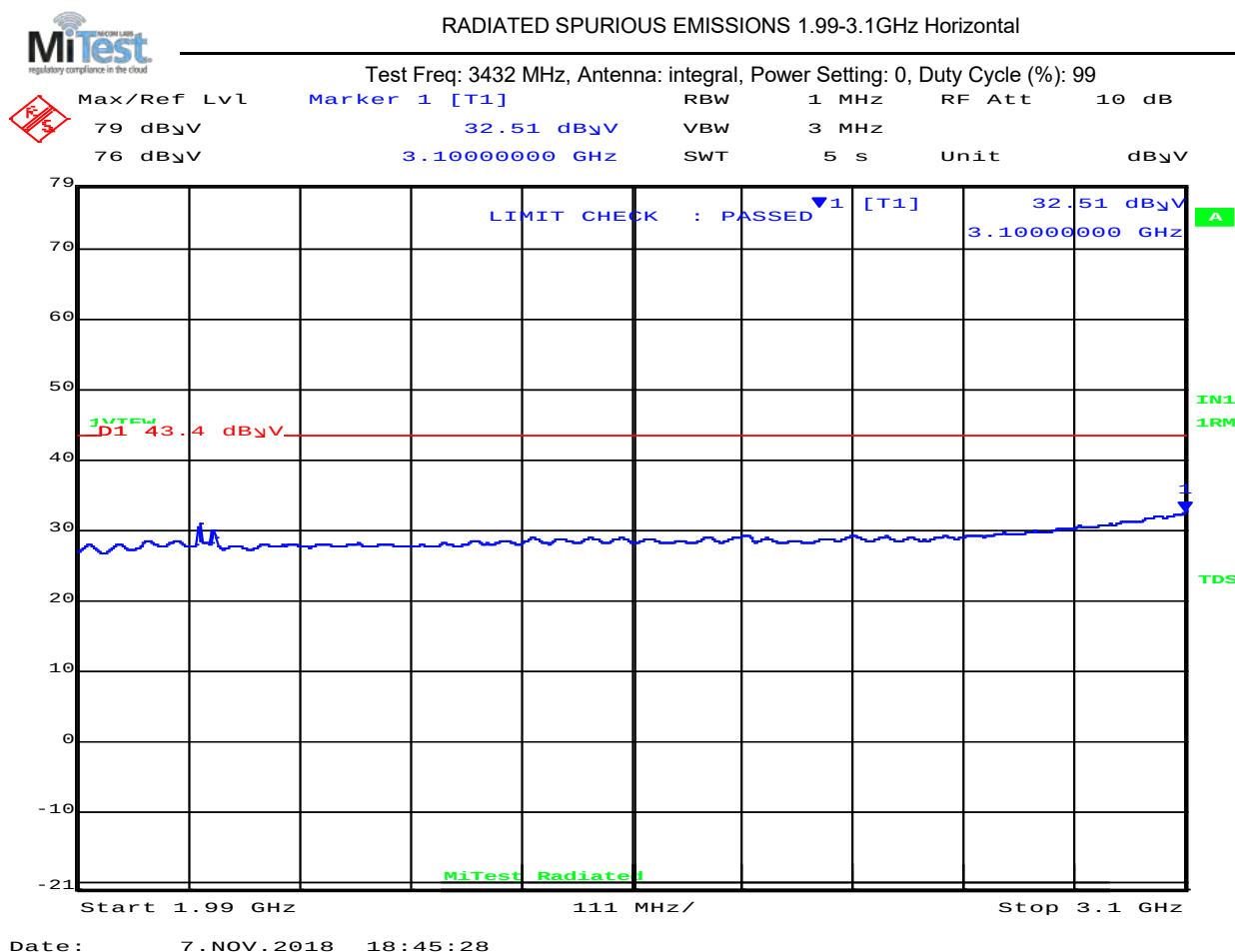


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00–3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

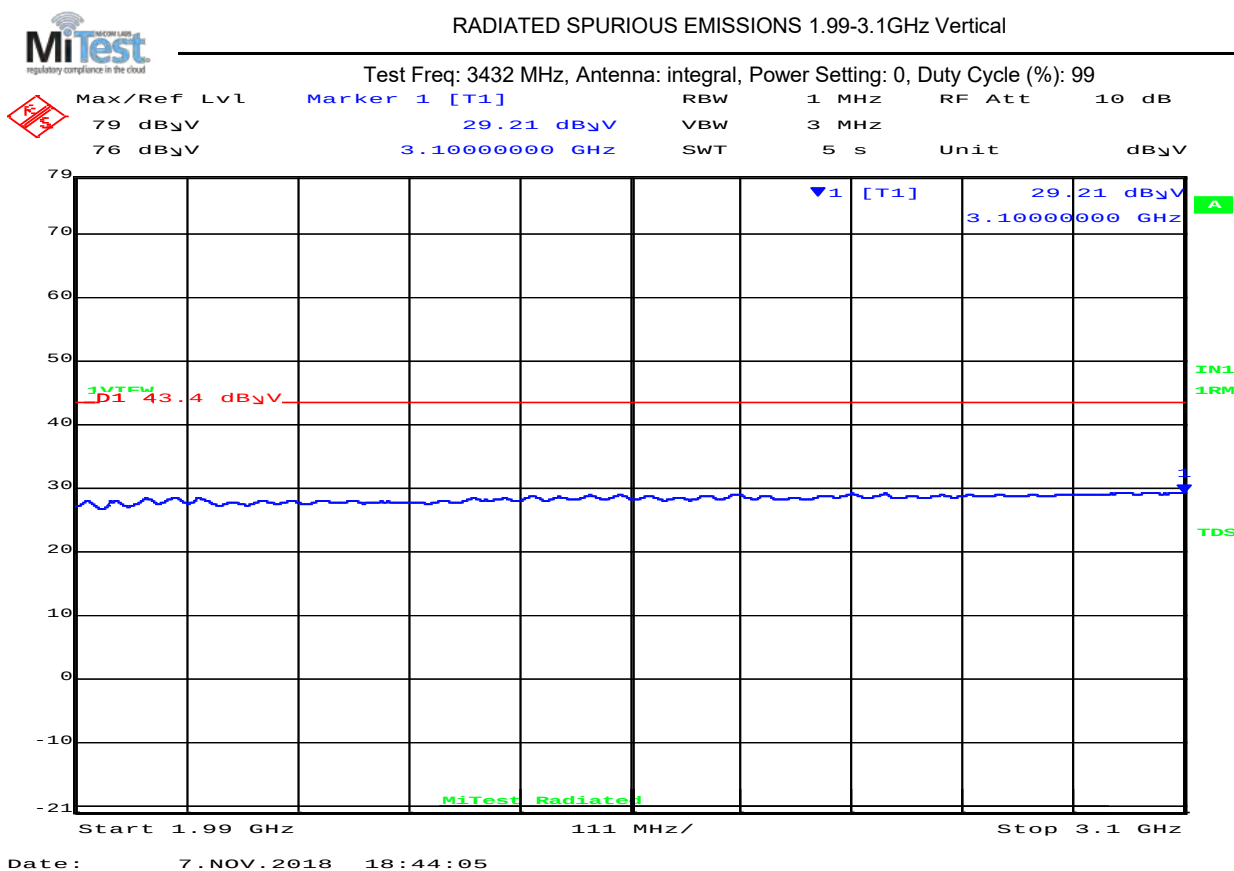


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

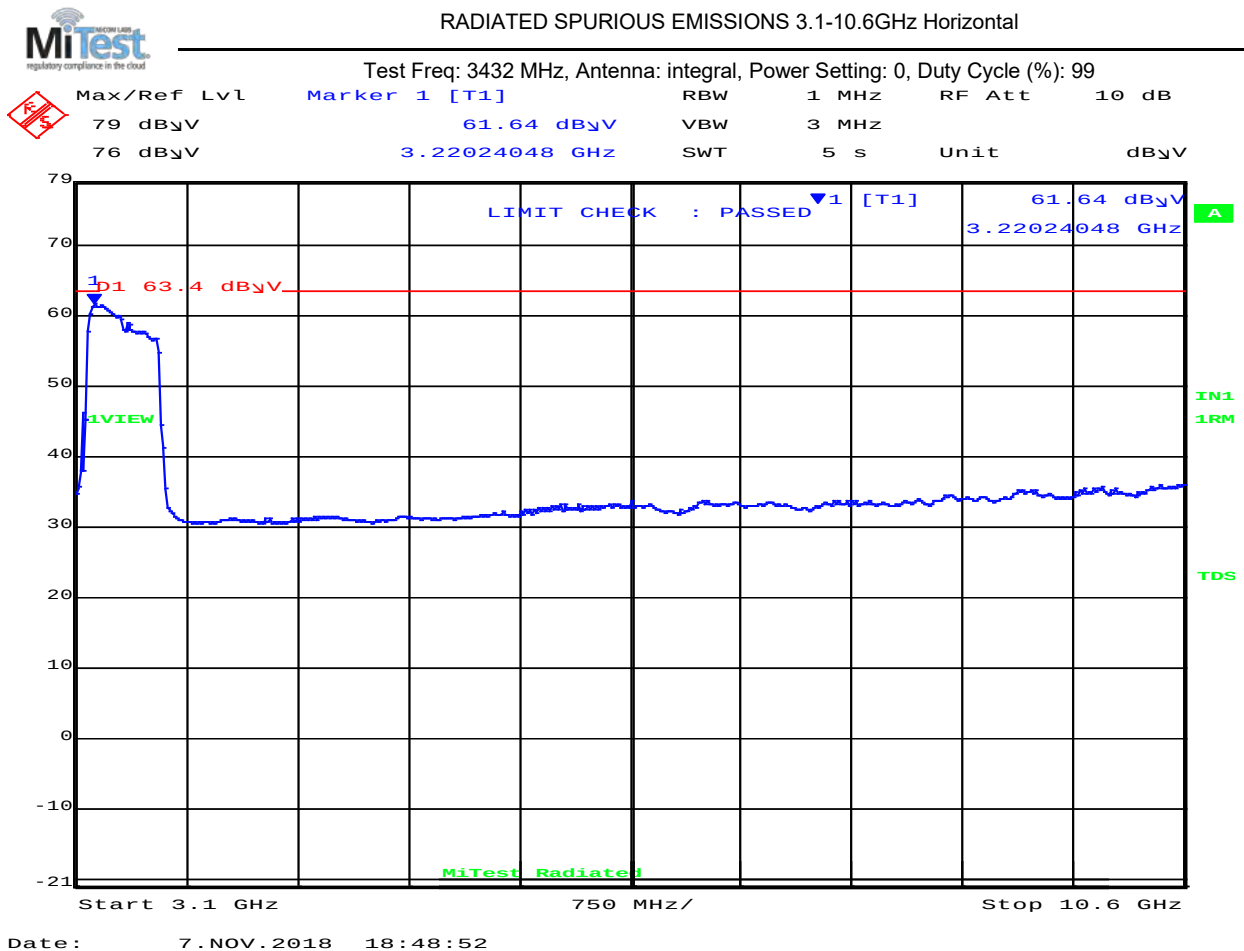


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	3220.24	60.4	Average	Horizontal	150	0	63.4	-3.0	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

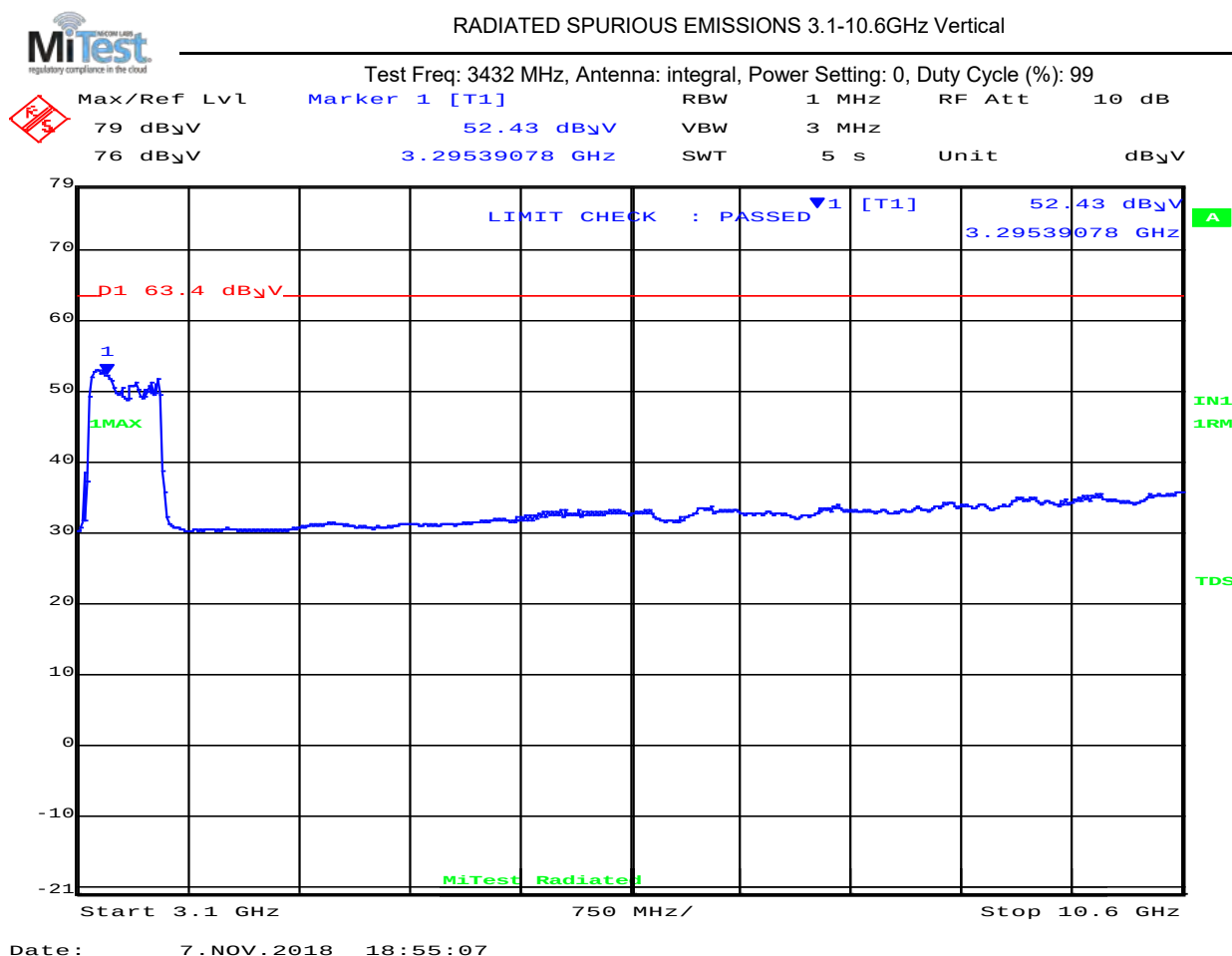


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

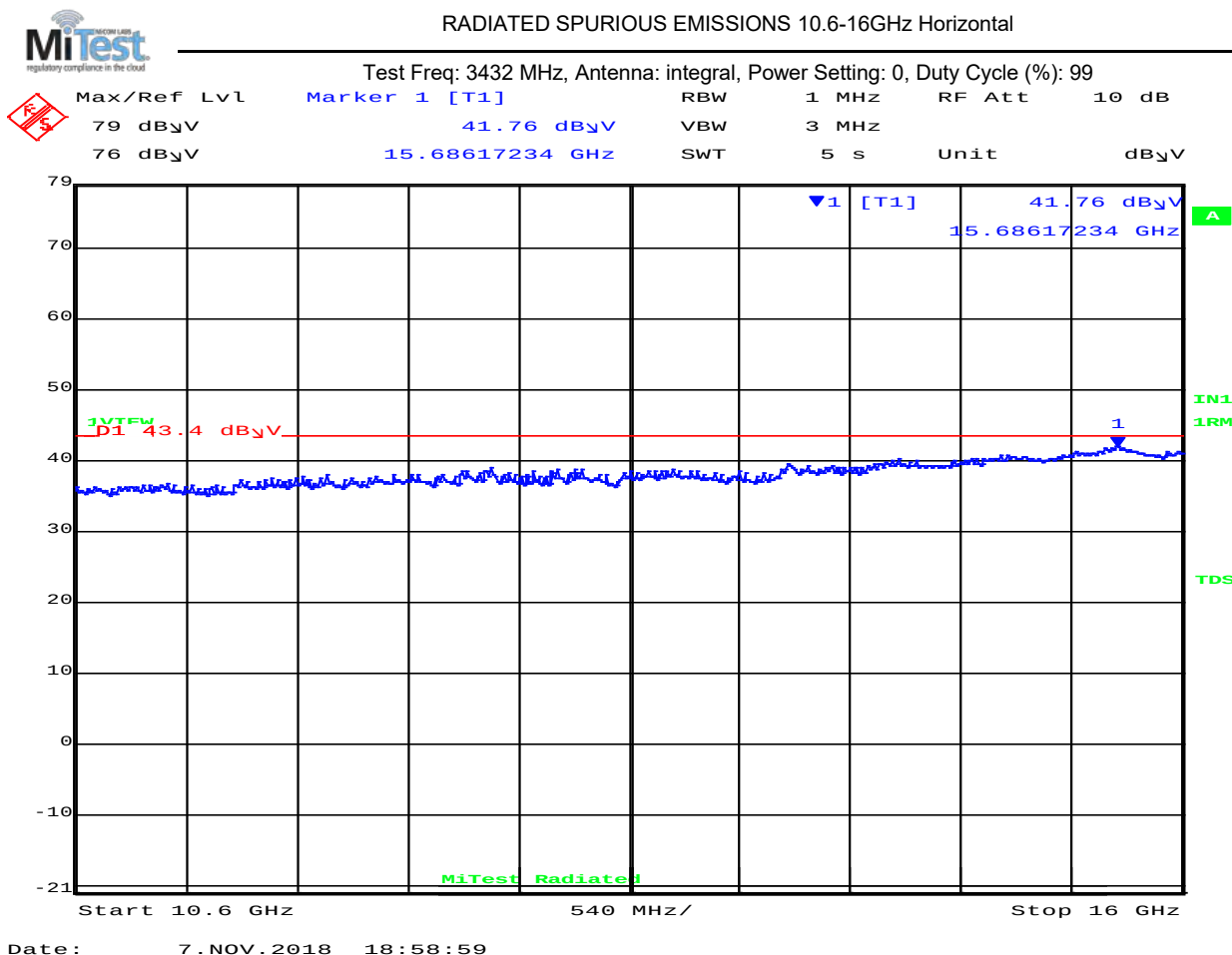


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	36.0	Average	Horizontal	150	0	43.4	-7.4	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

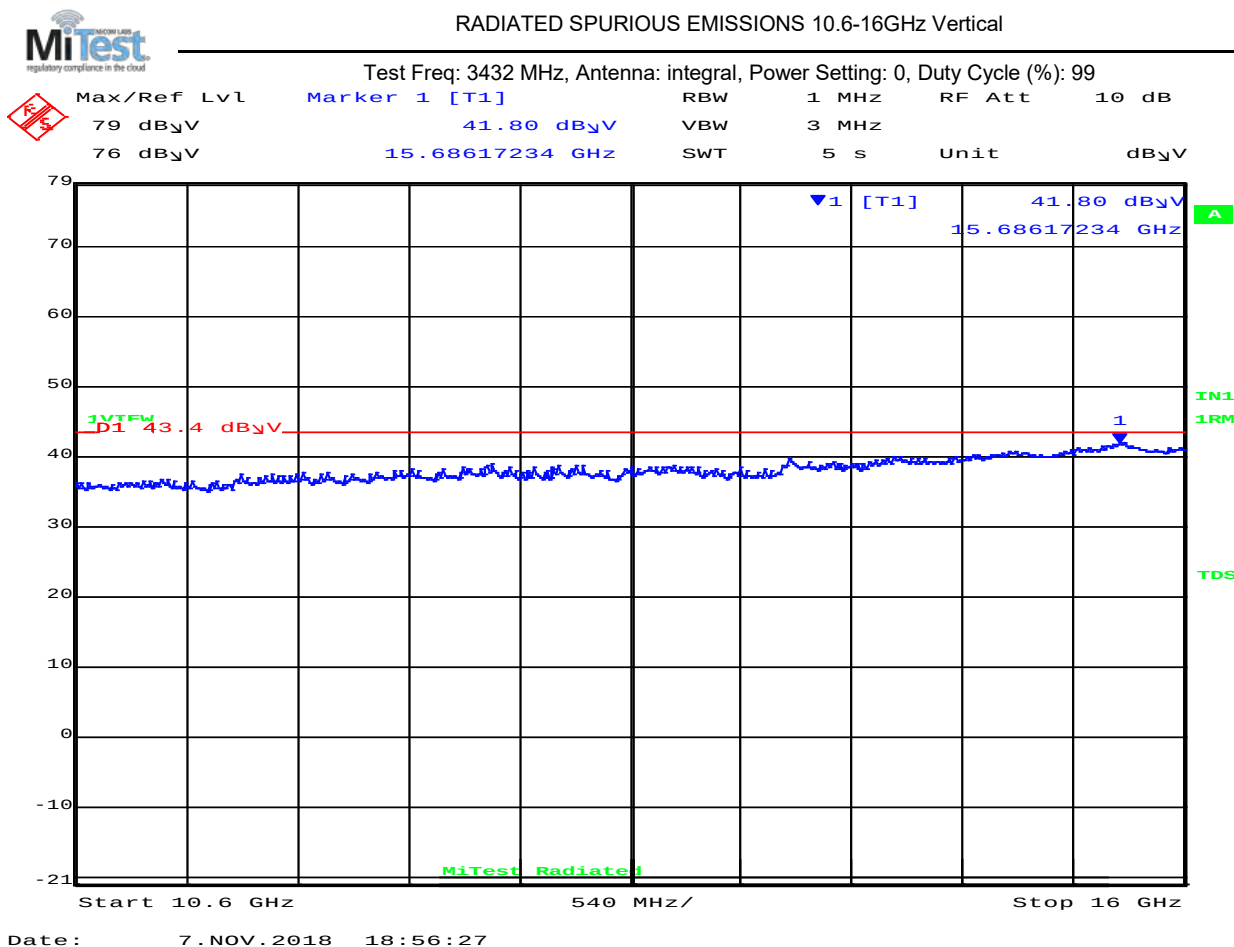


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	36.1	Average	Vertical	150	0	43.4	-7.3	Pass

Test Notes:

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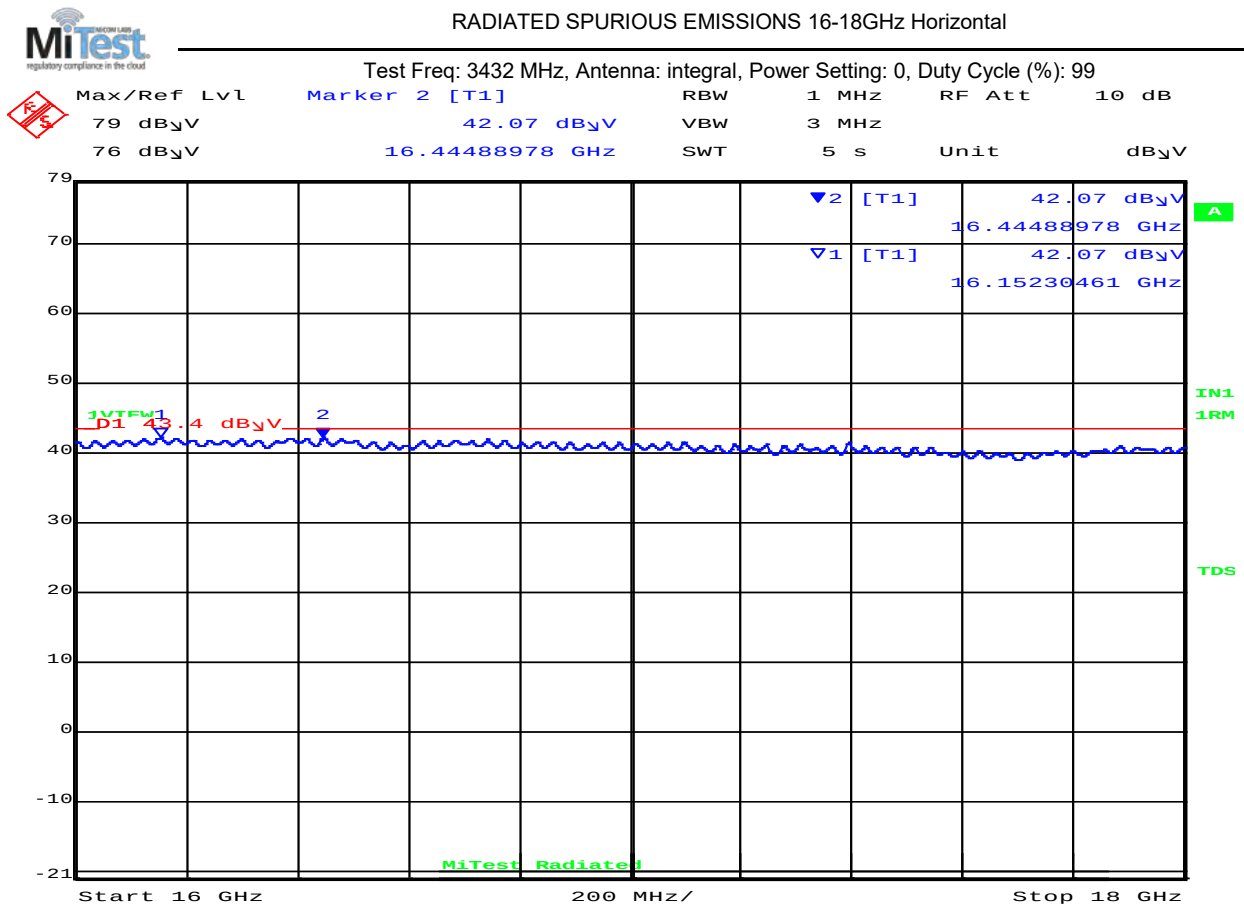


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 19:01:13

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16152.3	41.0	Average	Horizontal	150	0	43.4	-2.4	Pass
2	16448.9	40.9	Average	Horizontal	150	0	43.4	-2.5	Pass

Test Notes:

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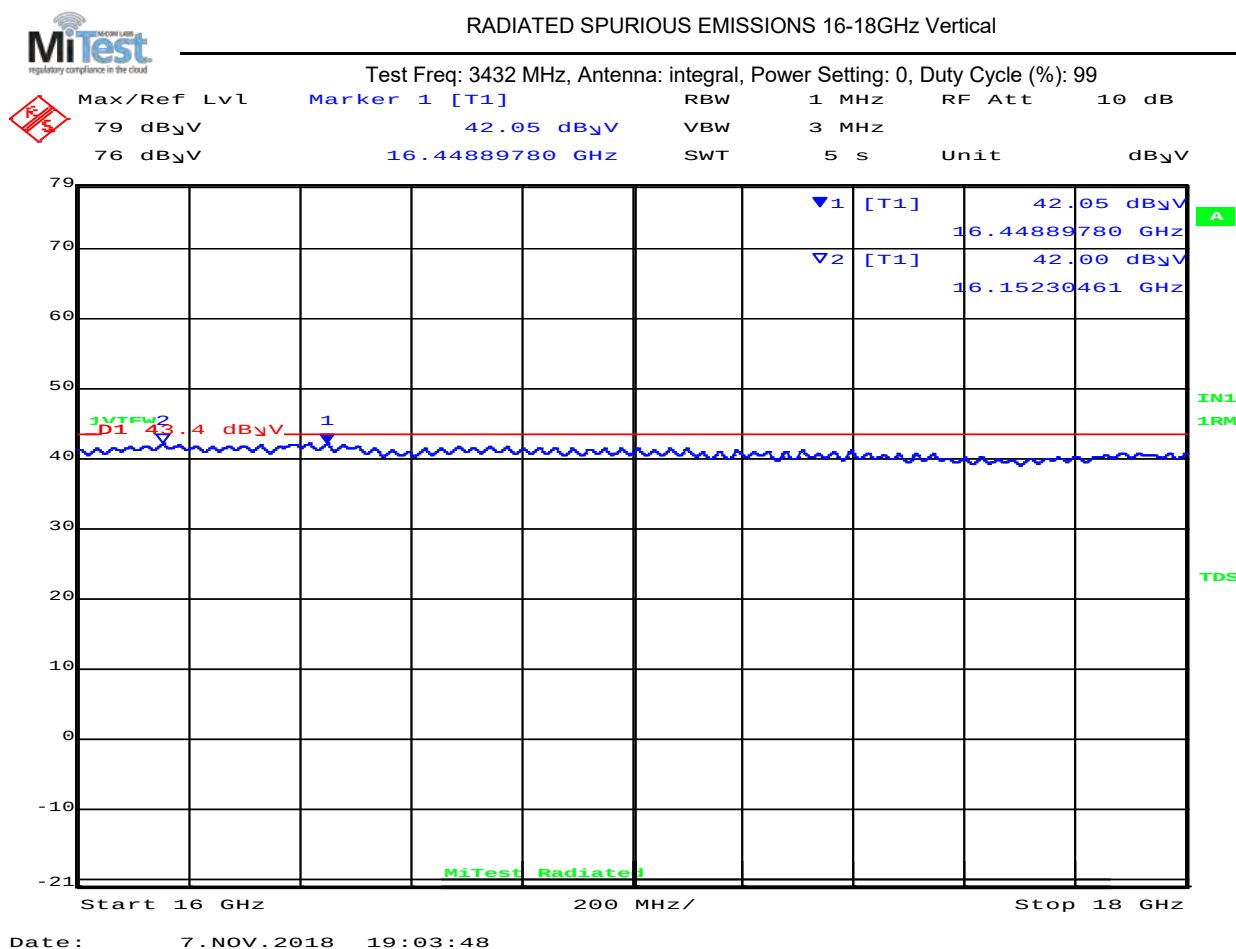


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16448.9	41.0	Average	Vertical	150	0	43.4	-2.4	Pass
2	16152.3	41.0	Average	Vertical	150	0	43.4	-2.4	Pass
Test Notes:									

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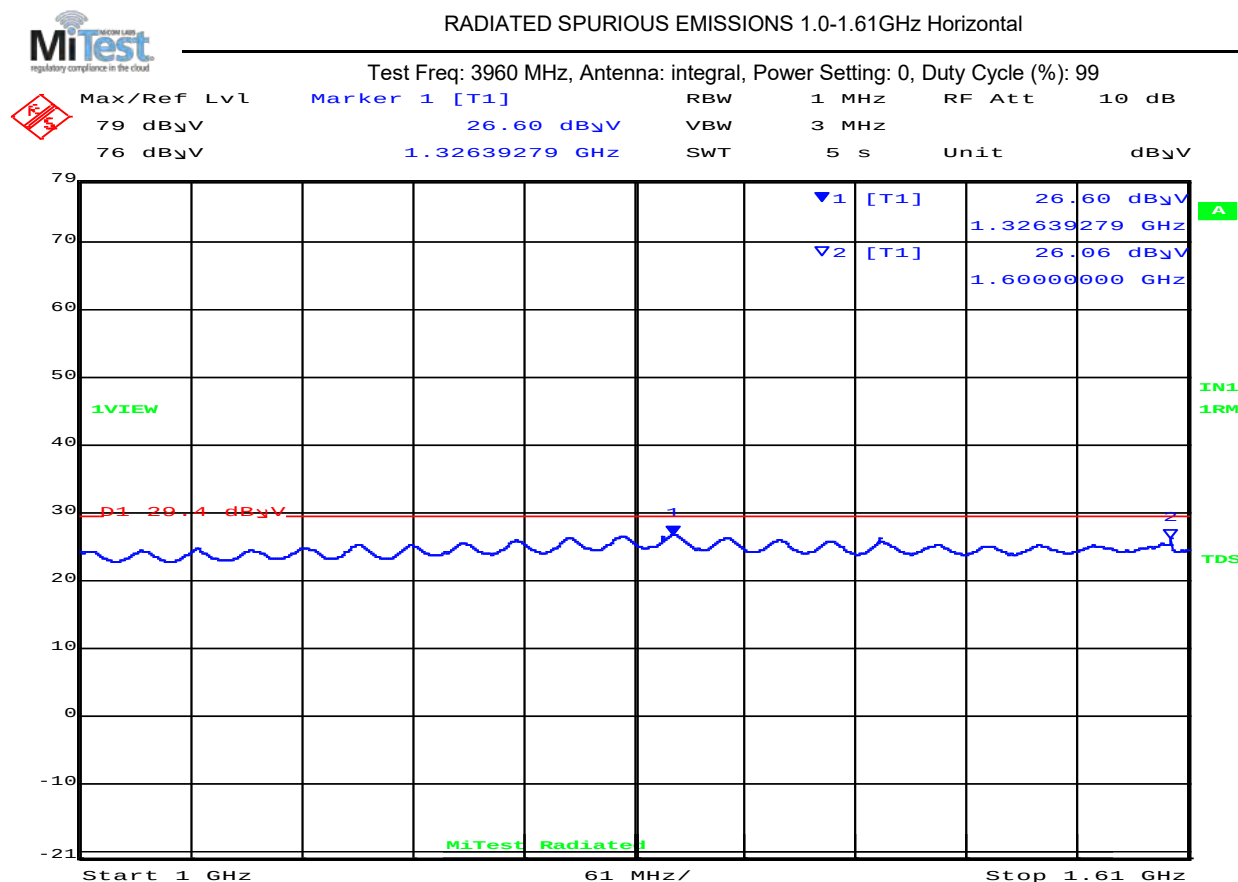
Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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3960 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 16:25:07

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.39	24.9	Average	Horizontal	150	0	29.4	-4.50	Pass
2	1600.22	27.1	Average	Horizontal	150	0	29.4	-2.30	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

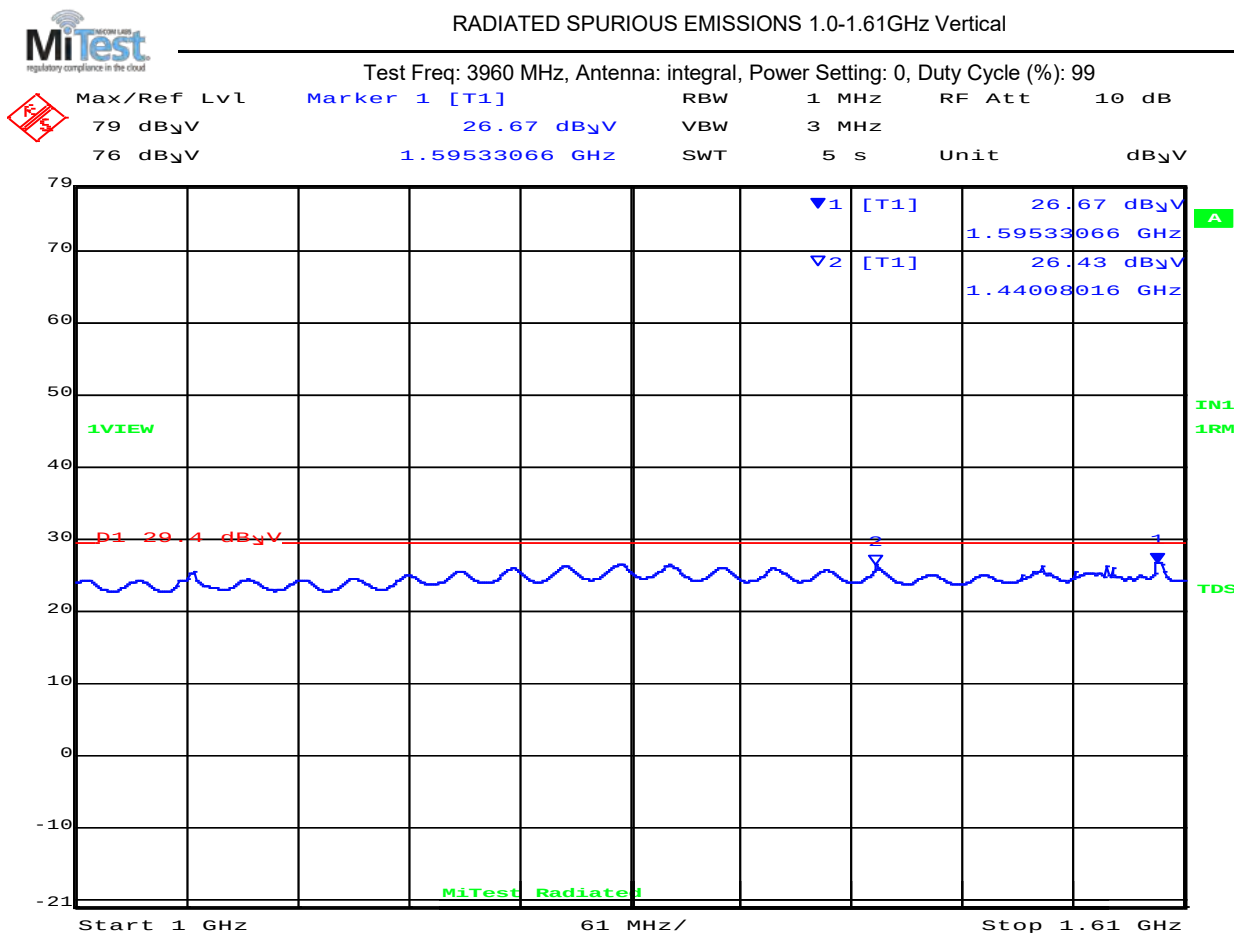


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 16:20:22

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1595.3	24.8	Average	Vertical	150	0	29.4	-4.60	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:

Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

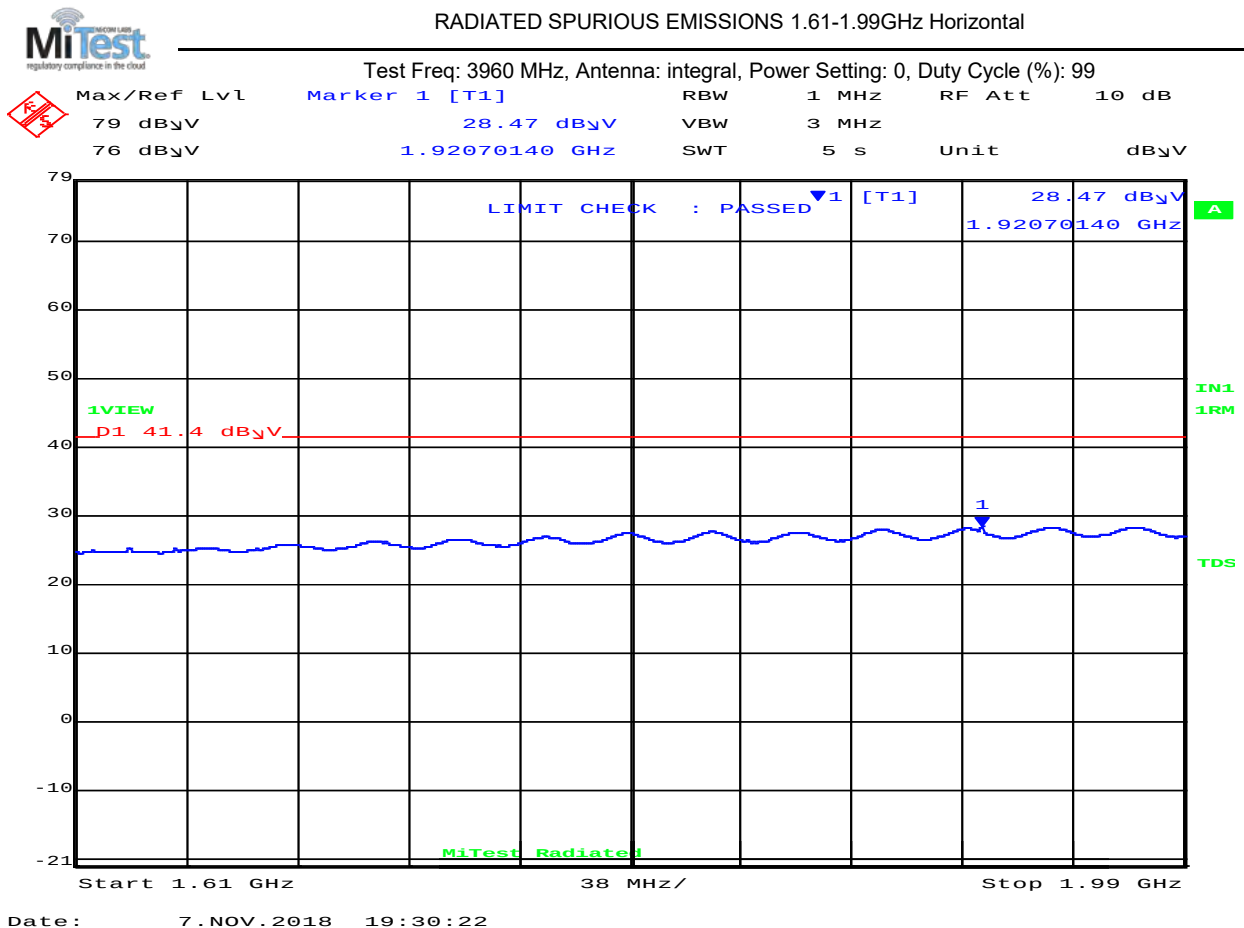


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

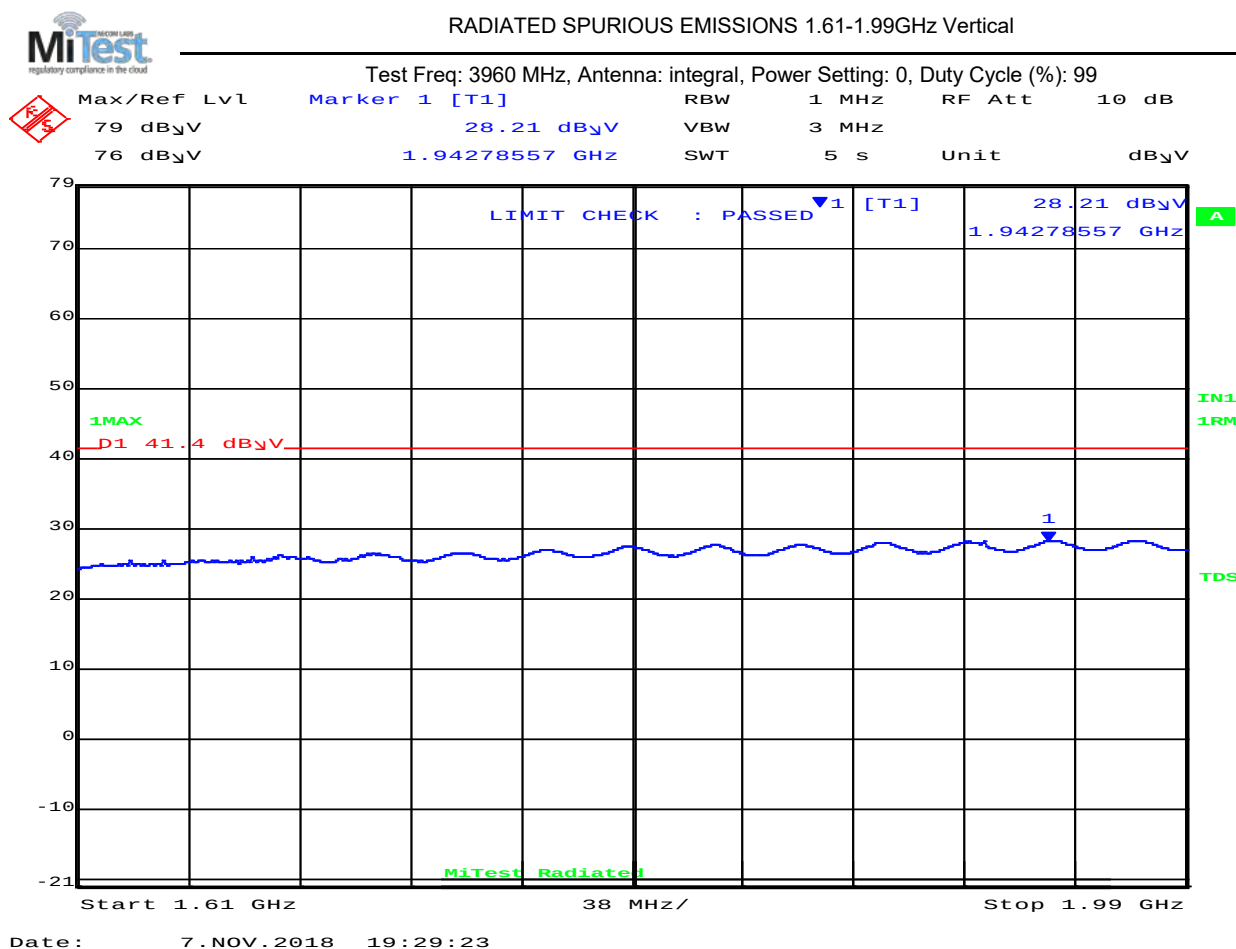


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

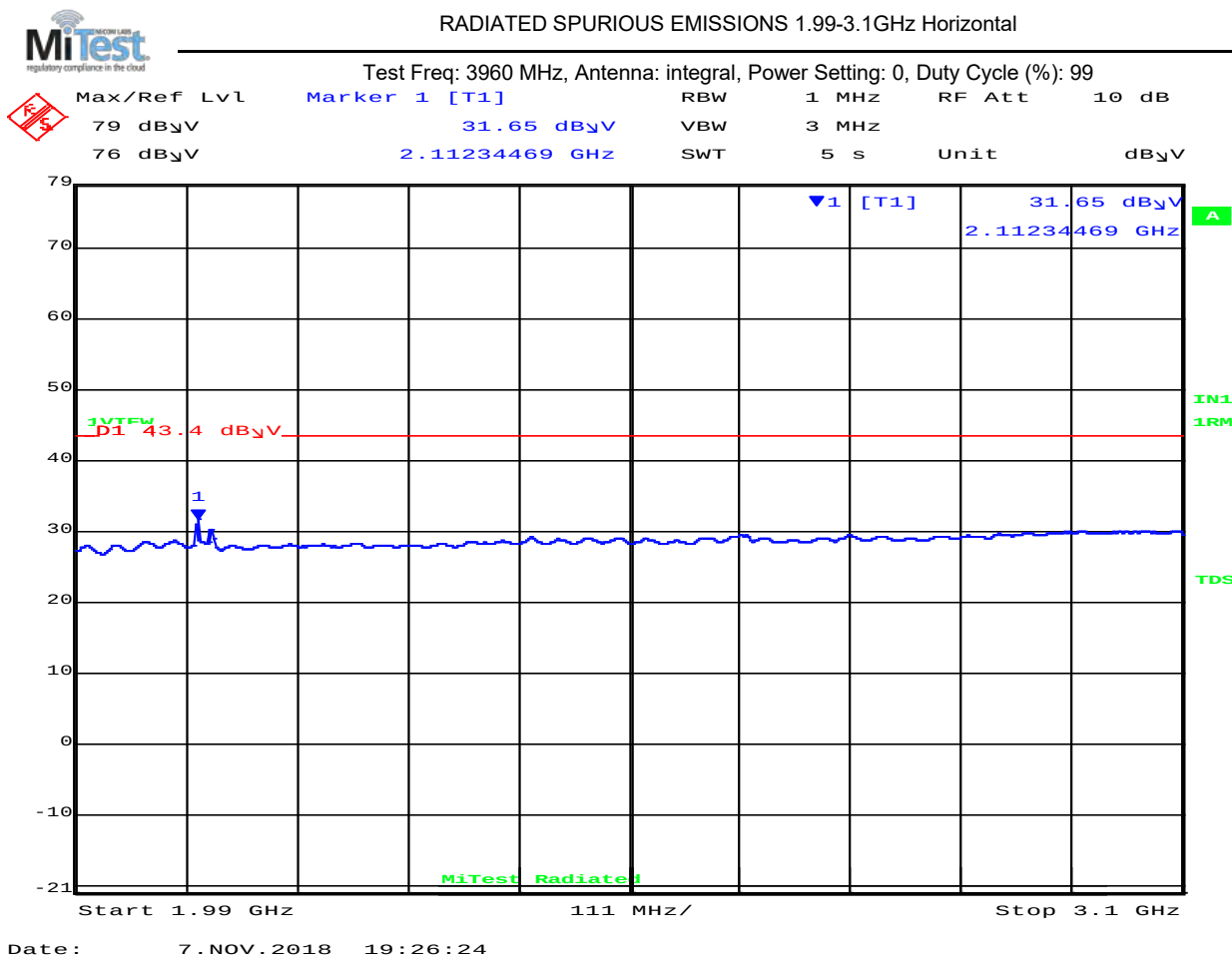


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

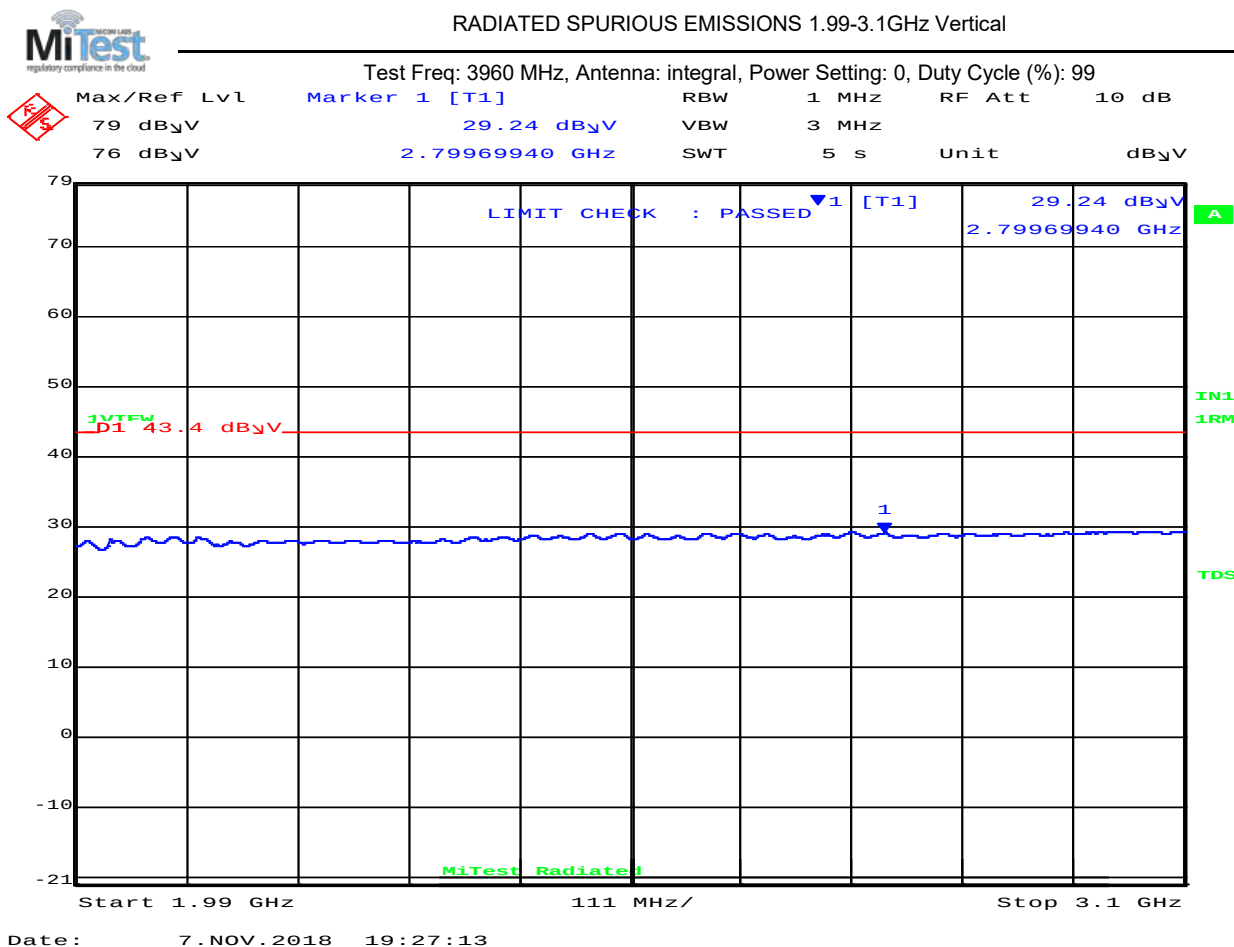


Title: Alereon AL5955, AL5930, AL5934
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

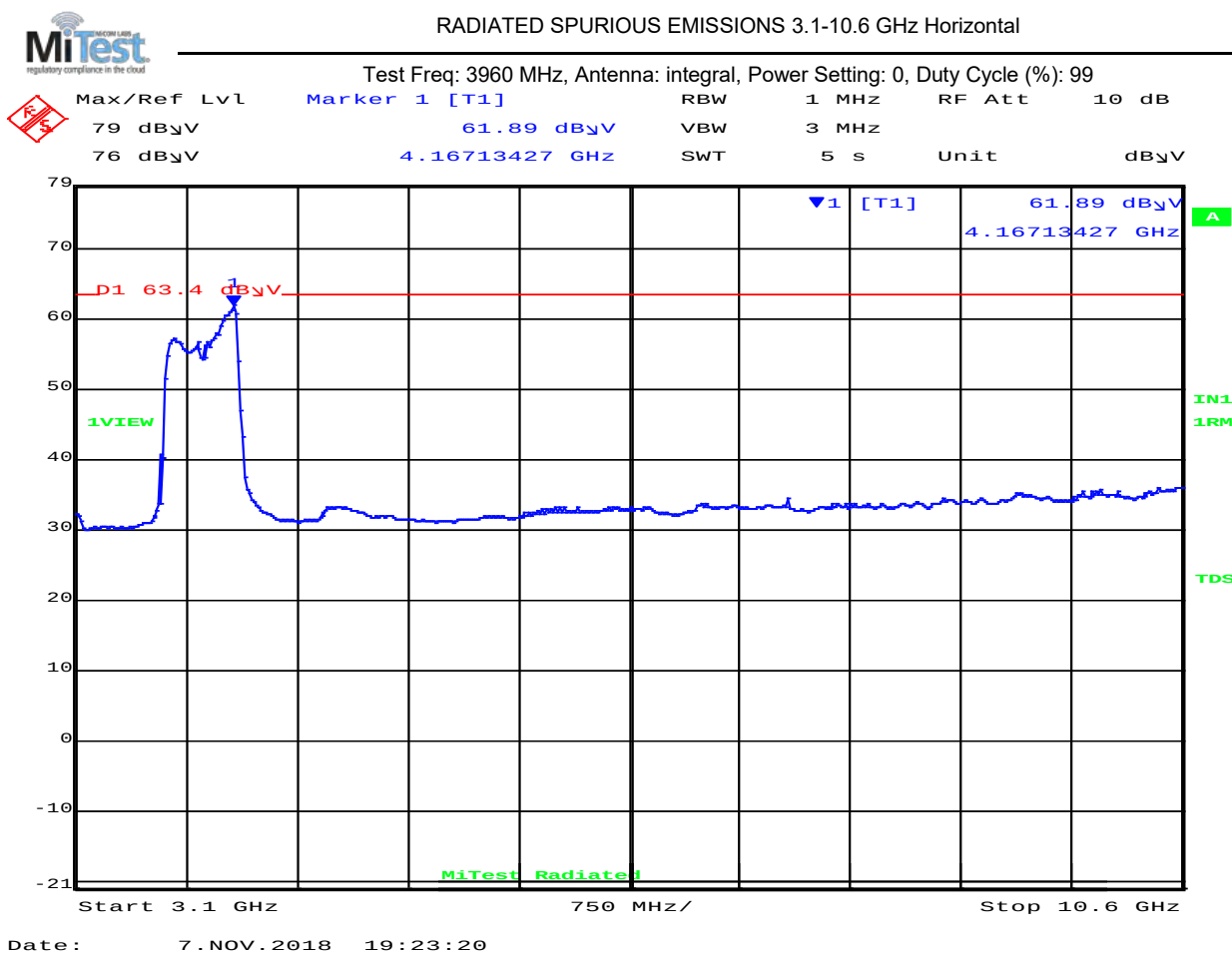


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	4167.1	59.6	Average	Horizontal	150	0	63.4	-3.80	Pass

Test Notes:

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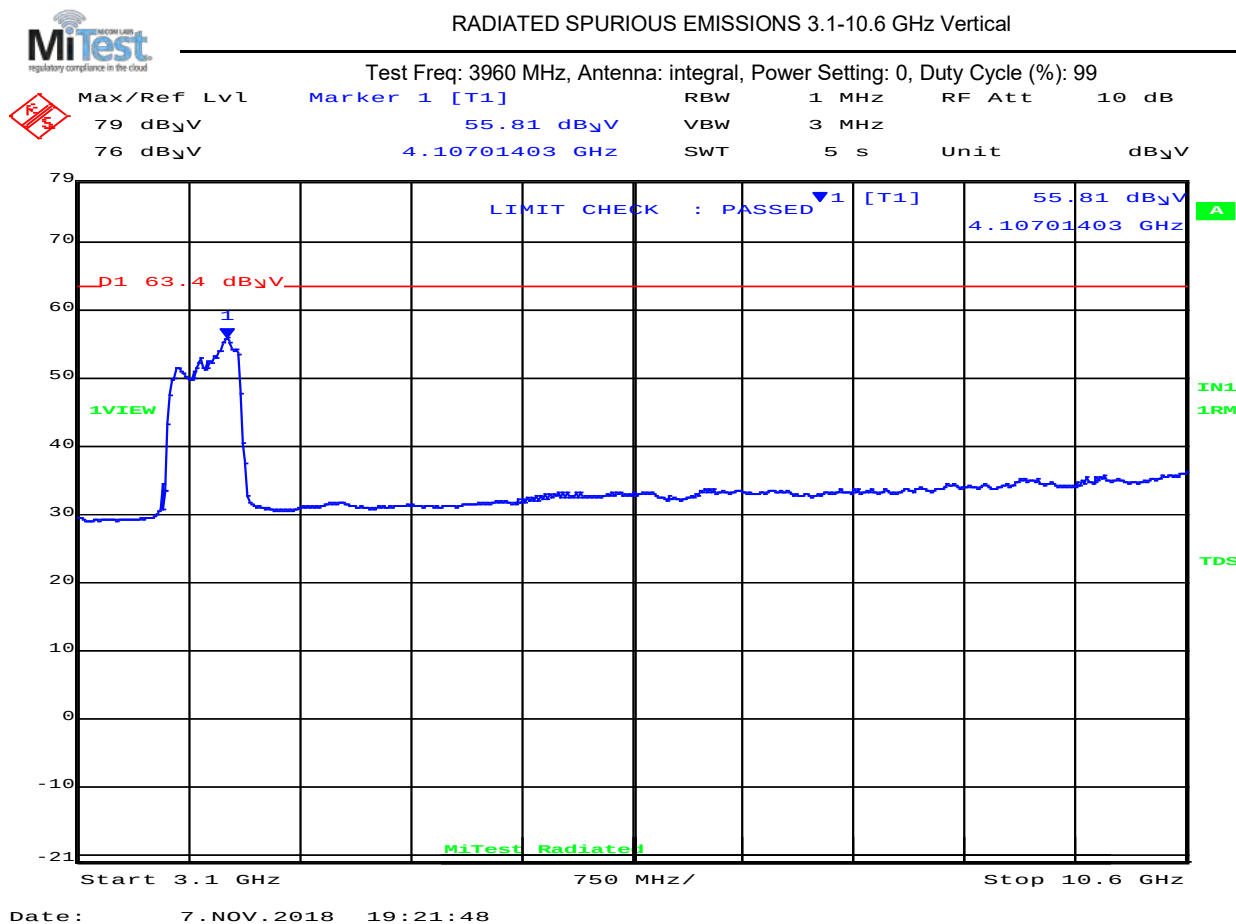


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

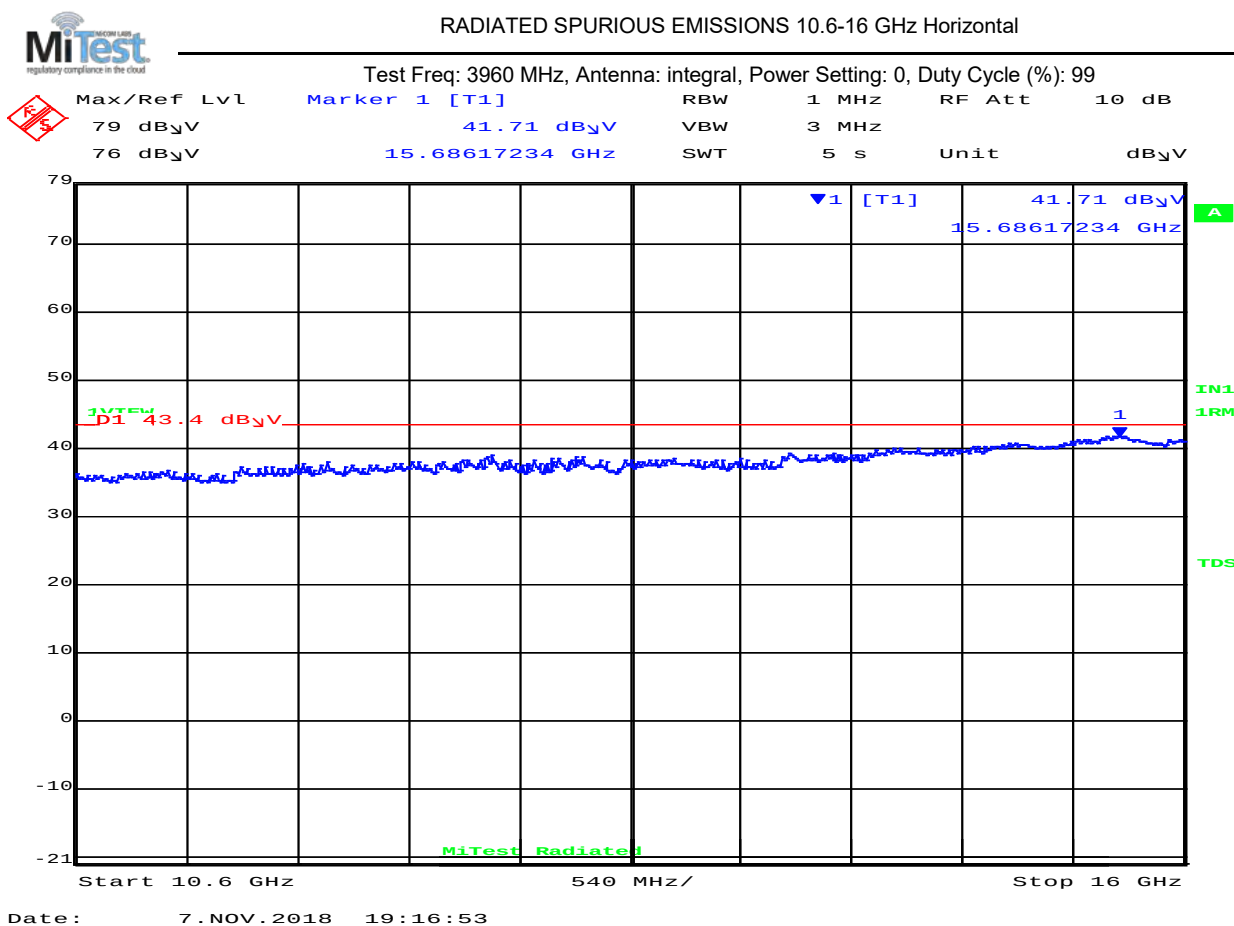


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.2	Average	Horizontal	150	0	43.4	-3.20	Pass

Test Notes:

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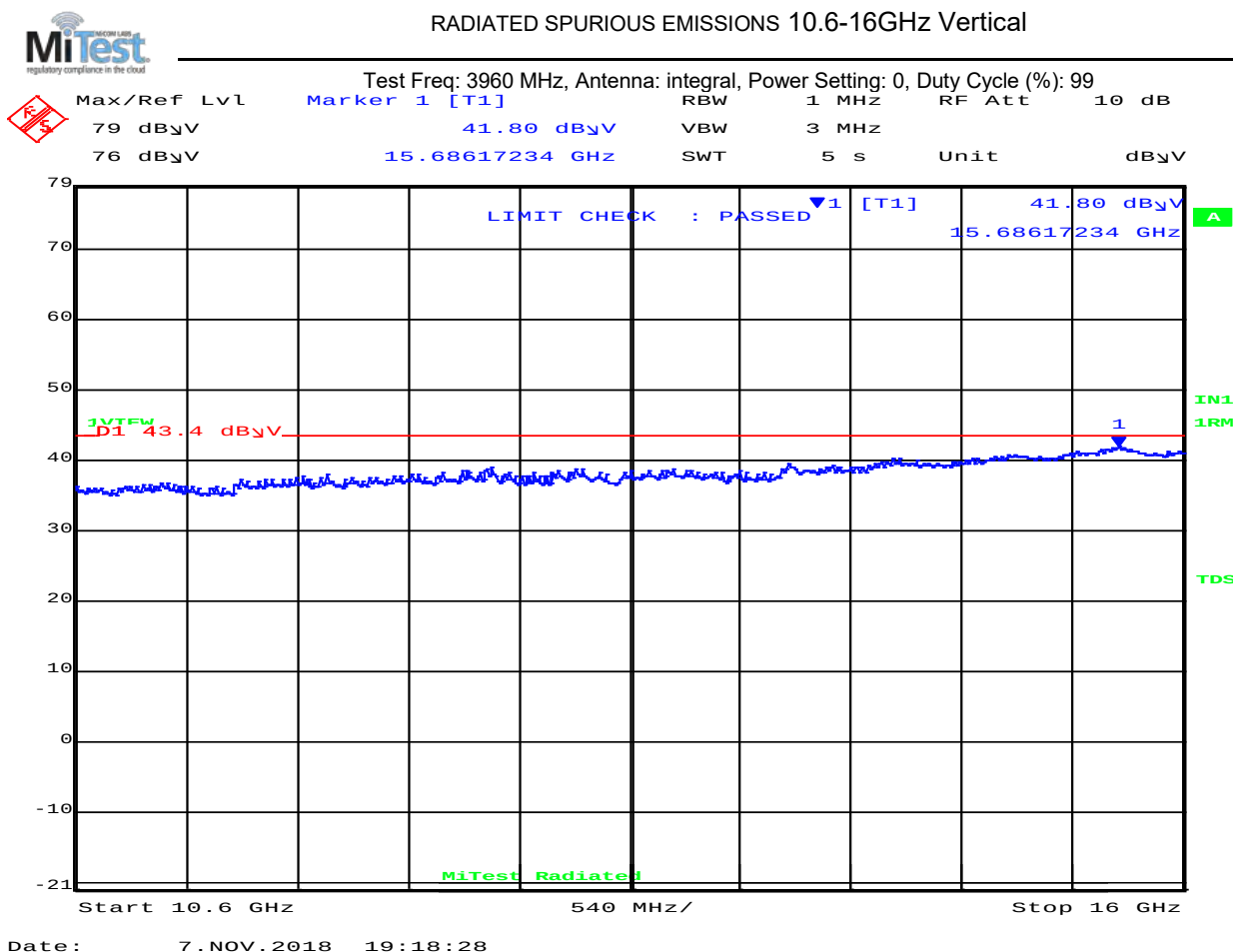


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	40.1	Average	Vertical	150	0	43.4	-3.30	Pass
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

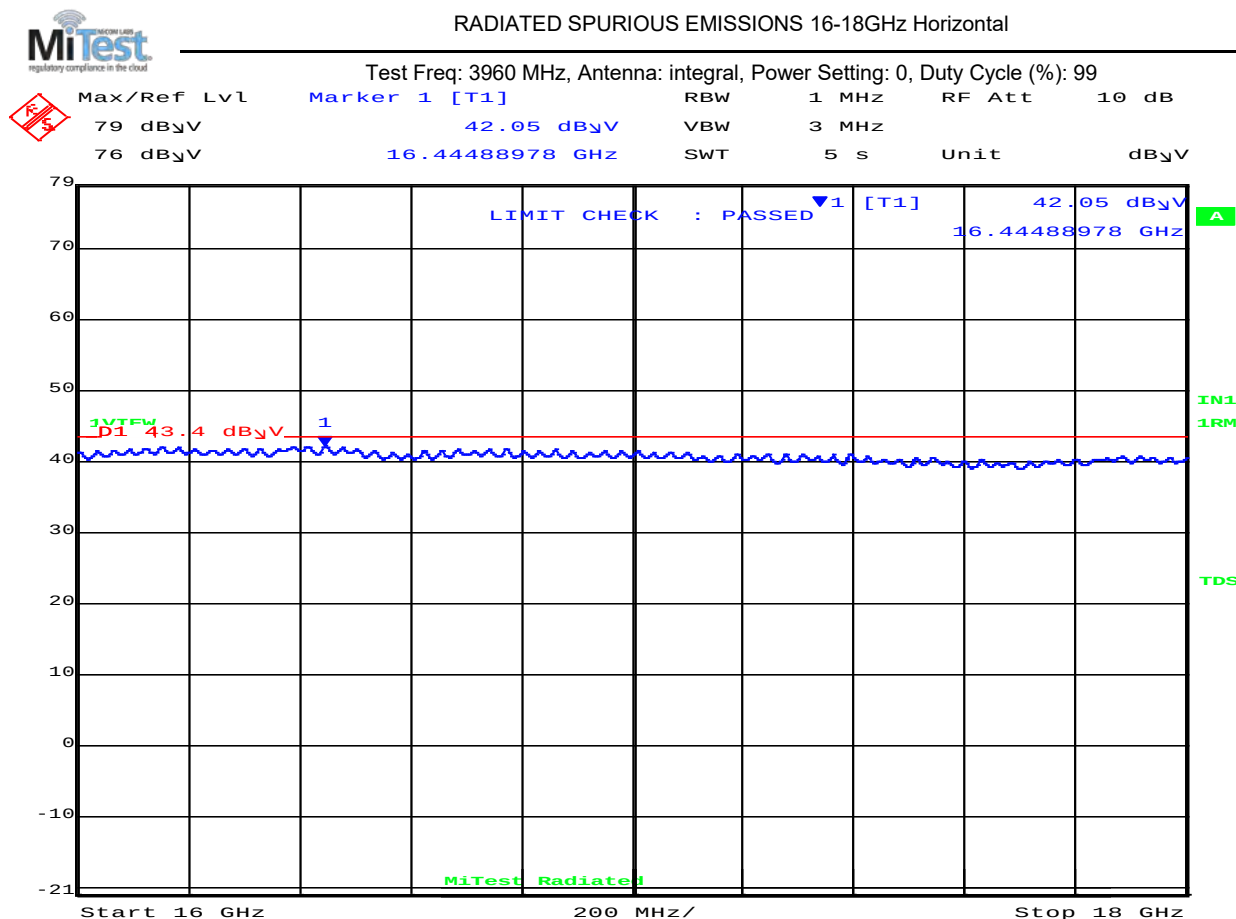


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

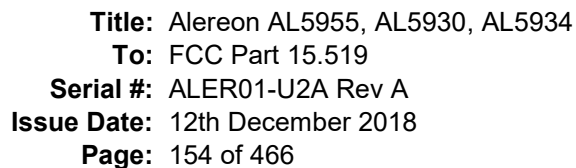
Test Measurement Results



Date: 7.NOV.2018 19:15:22

16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.9	41.0	Average	Horizontal	150	0	43.4	-2.40	Pass
Test Notes:									

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3960.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

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regulatory compliance in the cloud

Test Freq: 3960 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99



Test Notes:

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com



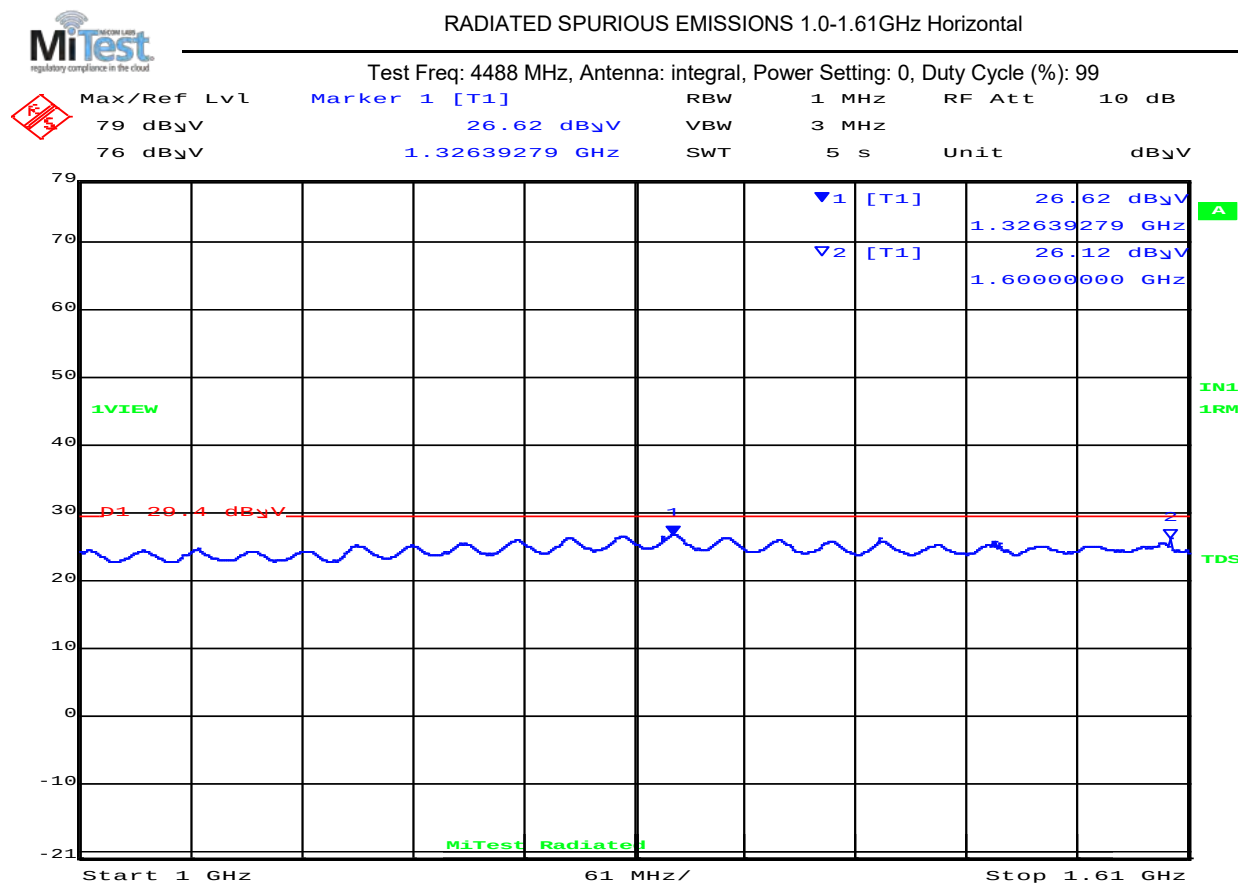
Title: Alereon AL5955, AL5930, AL5934
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4488 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 16:30:41

1000.00– 1610.00MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.4	24.9	Average	Horizontal	150	0	29.4	-4.50	Pass
2	1600.0	27.2	Average	Horizontal	150	0	29.4	-2.20	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

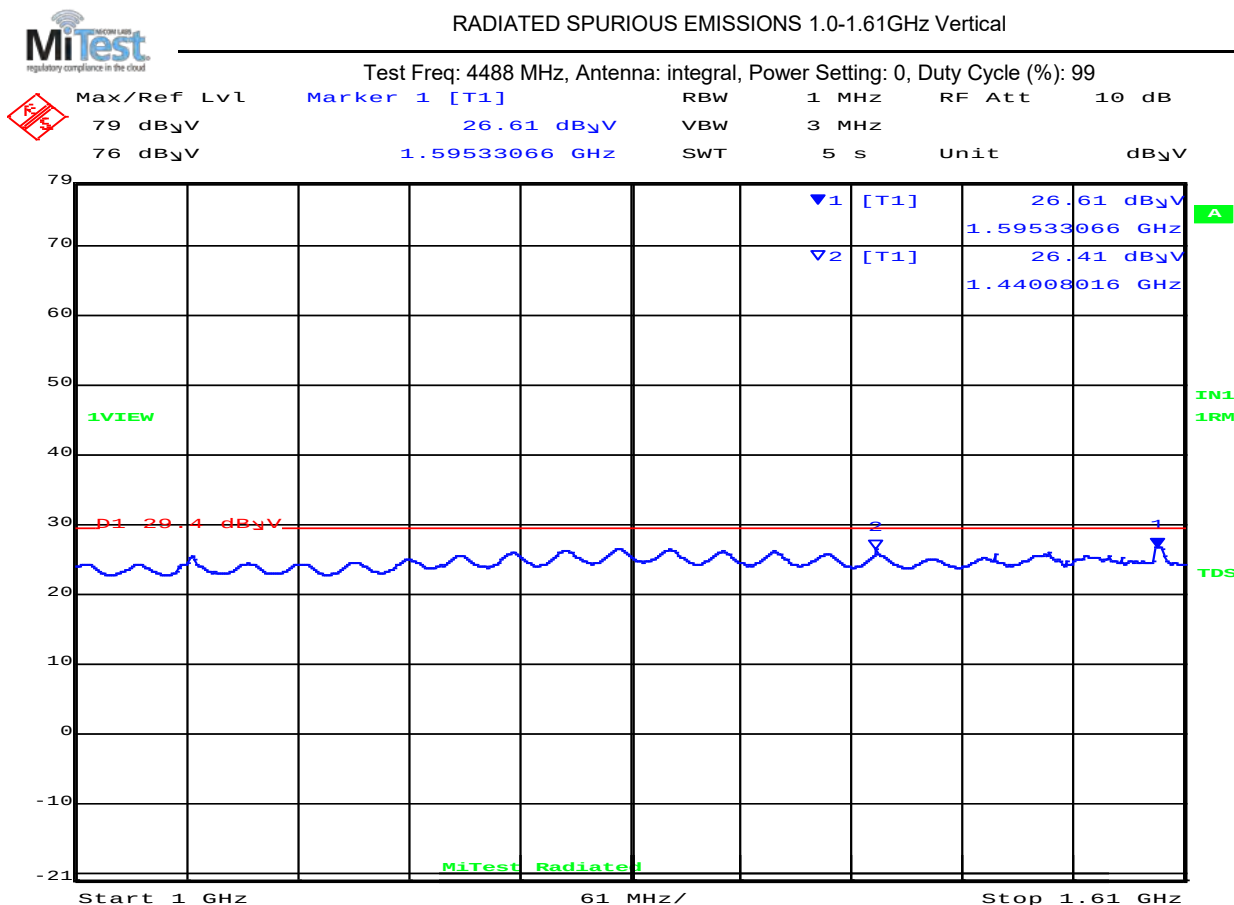


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 16:33:24

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1595.3	24.7	Average	Vertical	150	0	29.4	-4.70	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

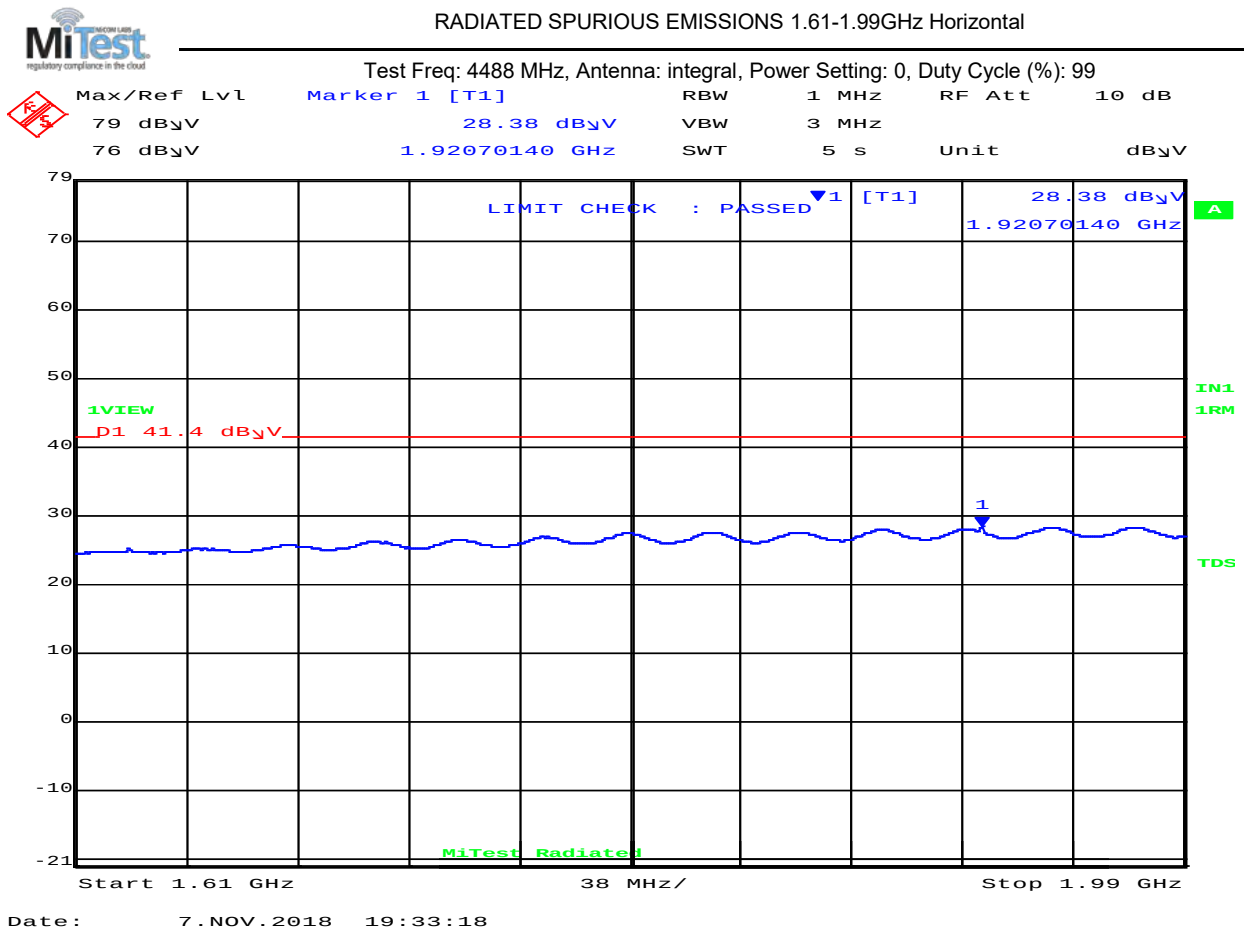


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

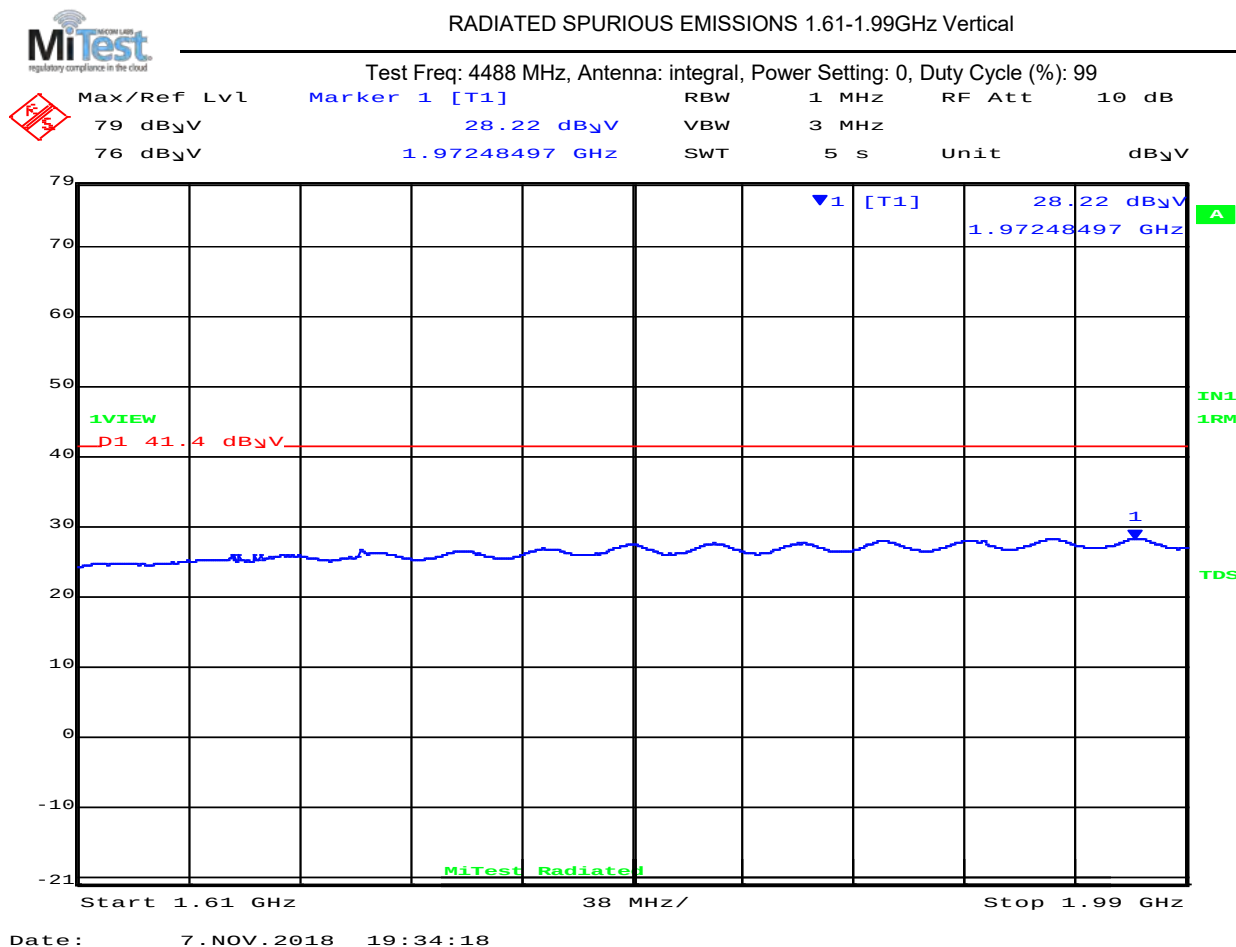


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

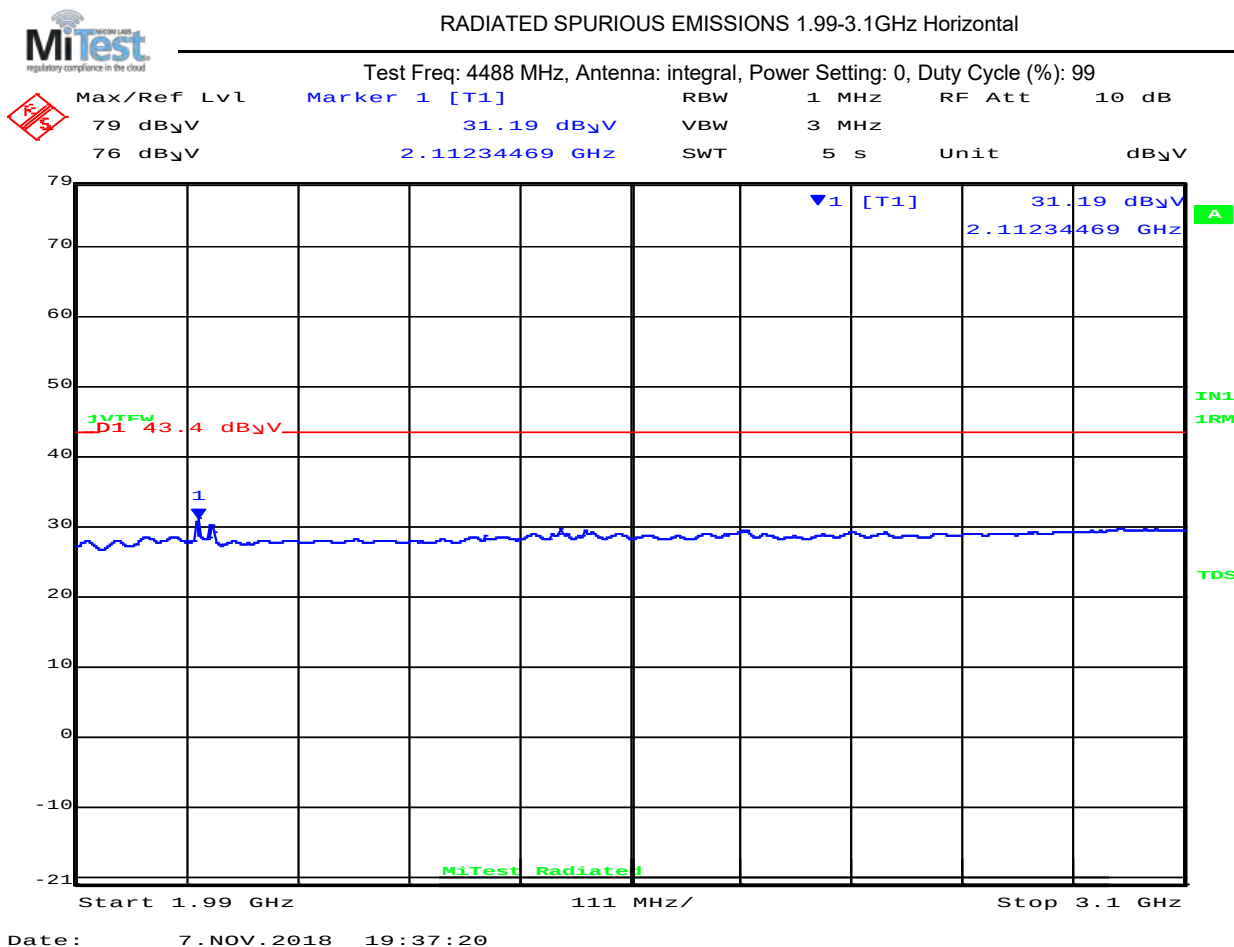


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

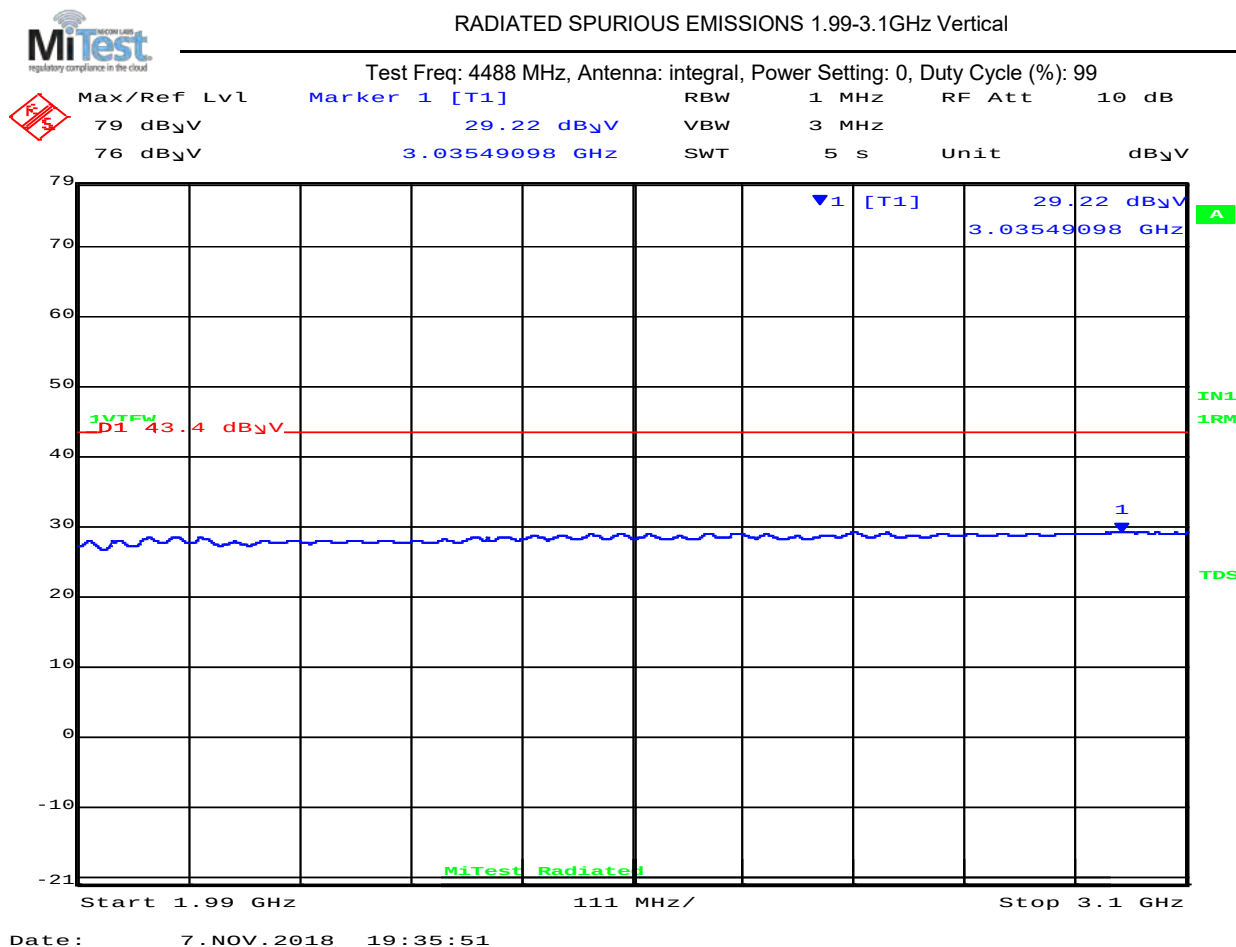


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

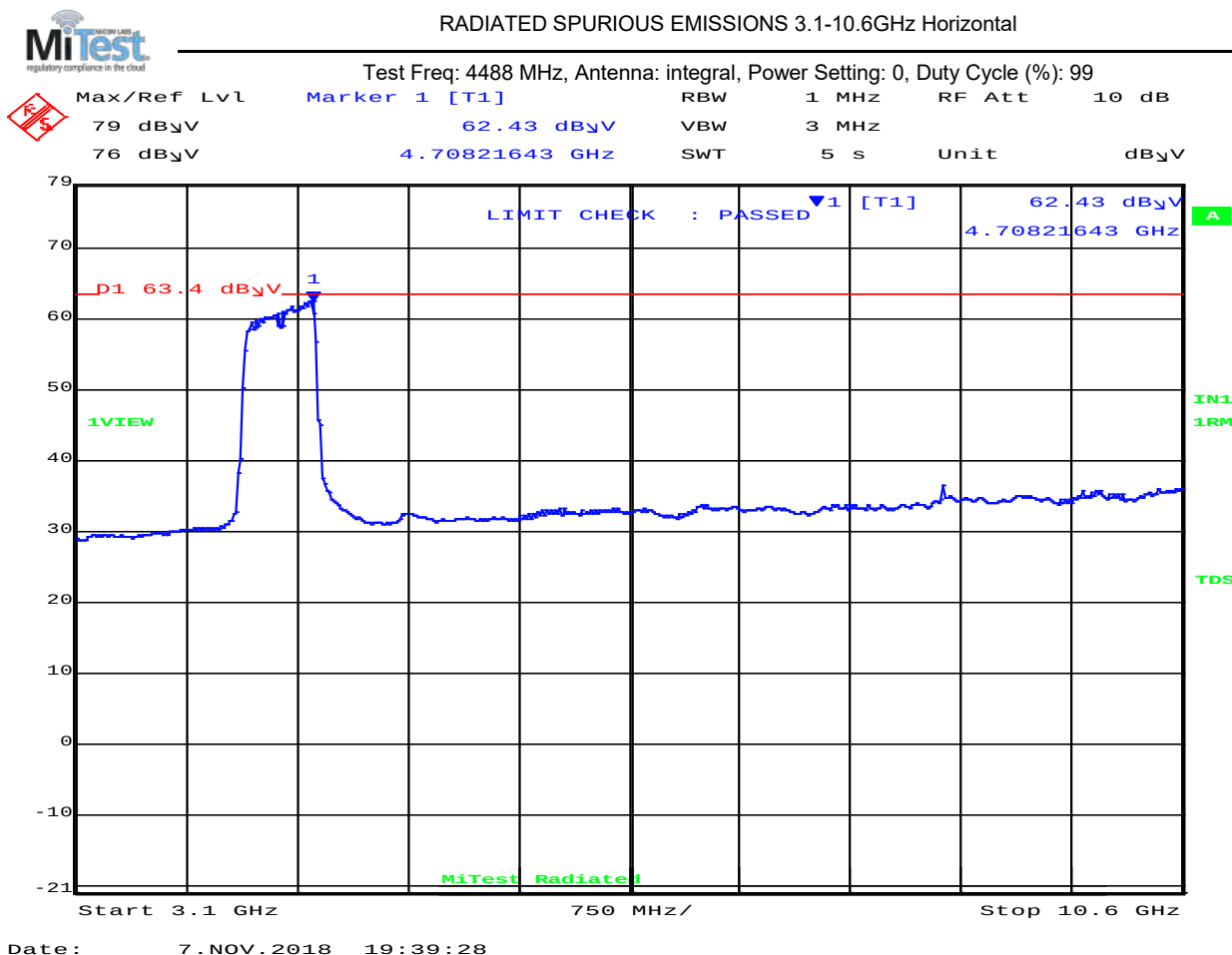


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	4708.2	61.6	Average	Horizontal	150	0	63.4	-1.80	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

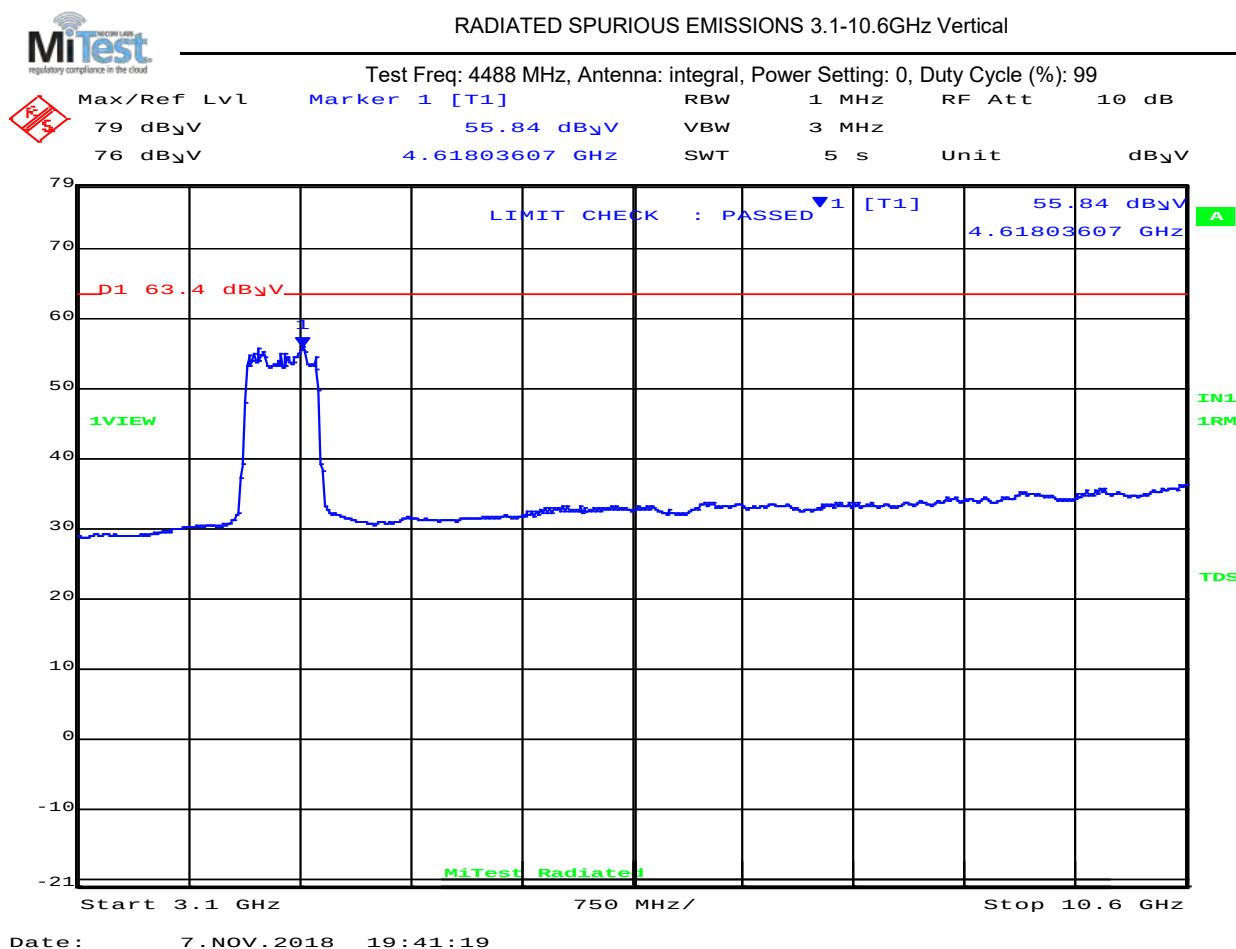


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

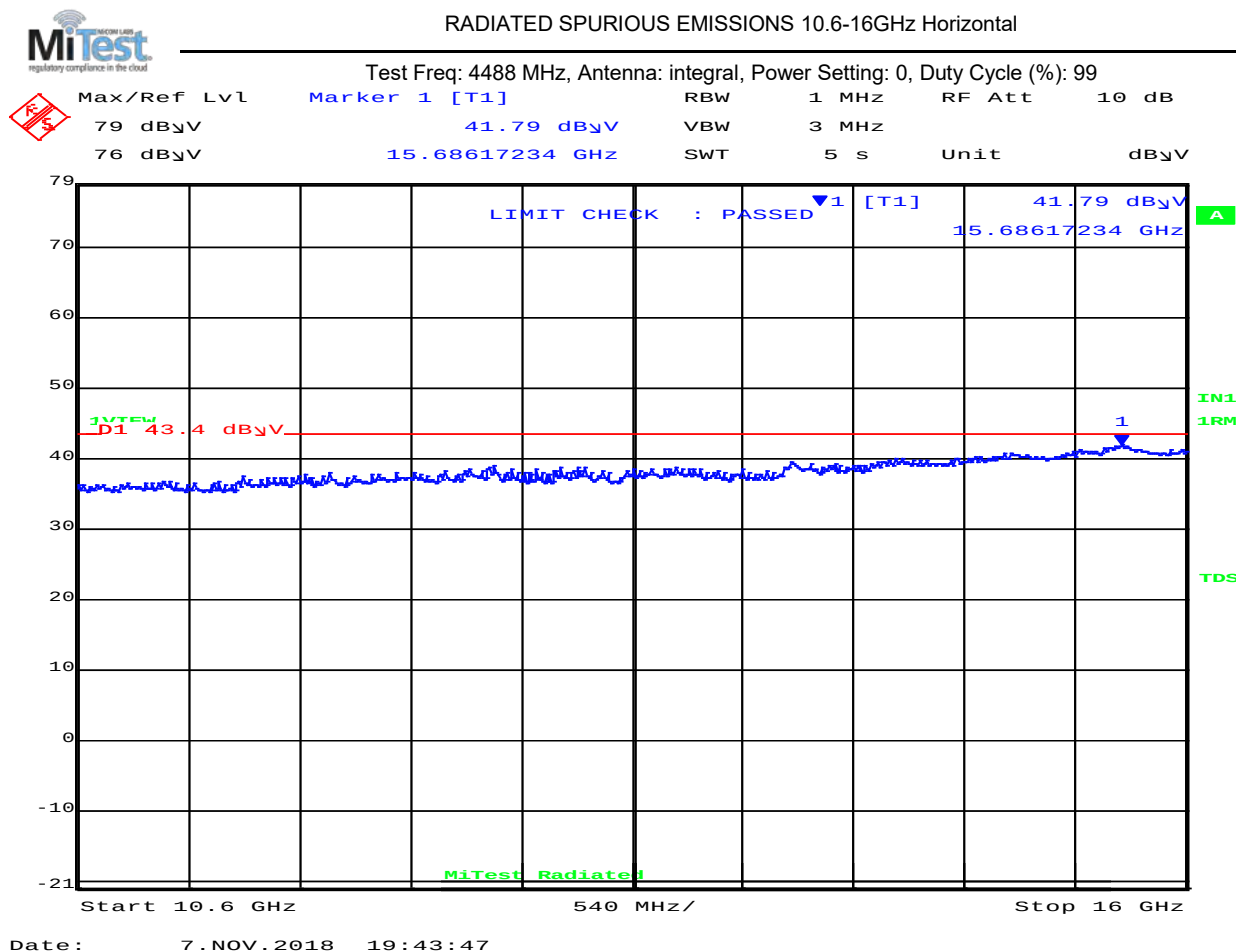


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	40.3	Average	Horizontal	150	0	43.4	-3.10	Pass
Test Notes:									

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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

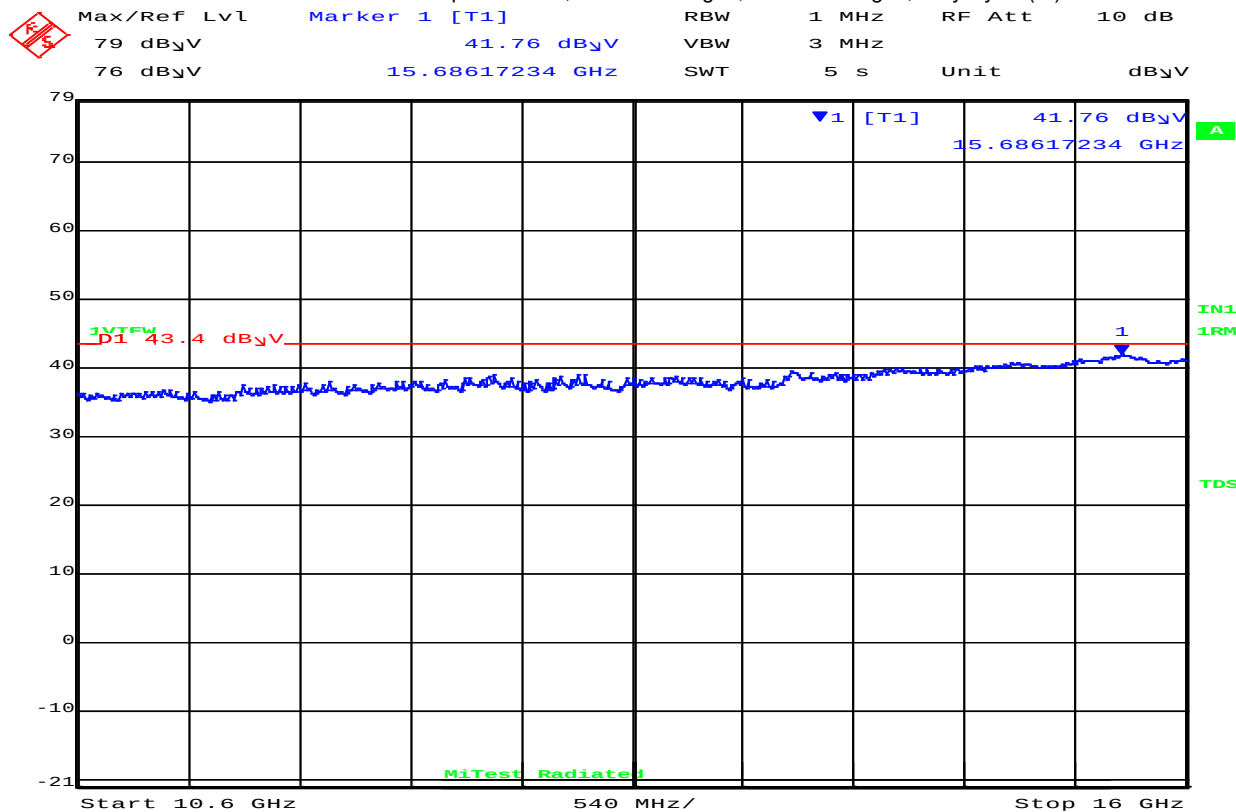
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 10.6-16GHz Vertical

Test Freq: 4488 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99



Date: 7.NOV.2018 19:43:00

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.1	Average	Vertical	150	0	43.4	-3.30	Pass

Test Notes:

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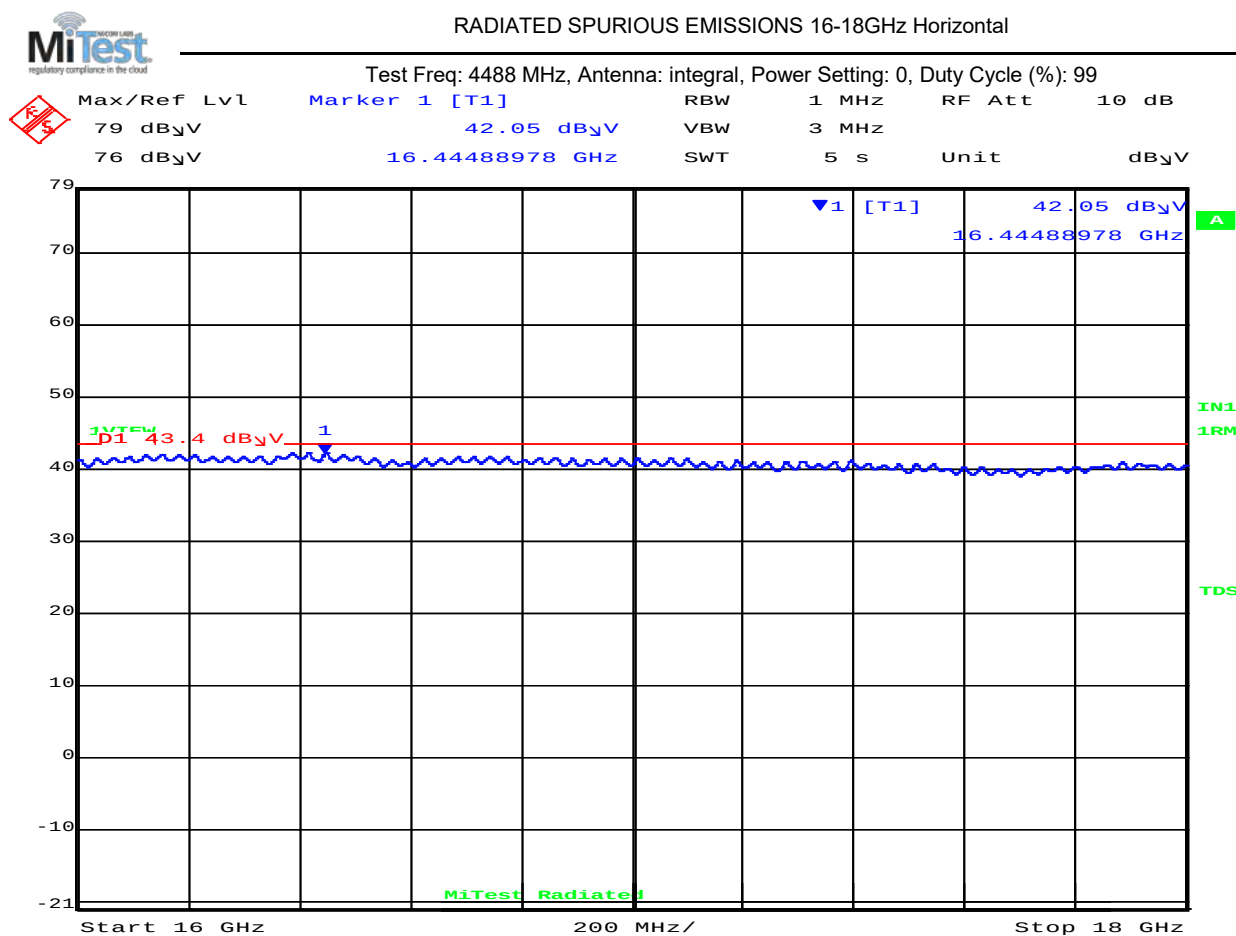


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



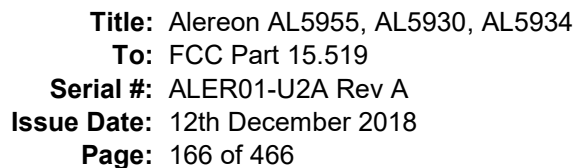
Date: 7.NOV.2018 19:45:38

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.9	41.1	Average	Horizontal	150	0	43.4	-2.30	Pass

Test Notes:

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	4488.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

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Test Freq: 4488 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99



Test Notes:

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com



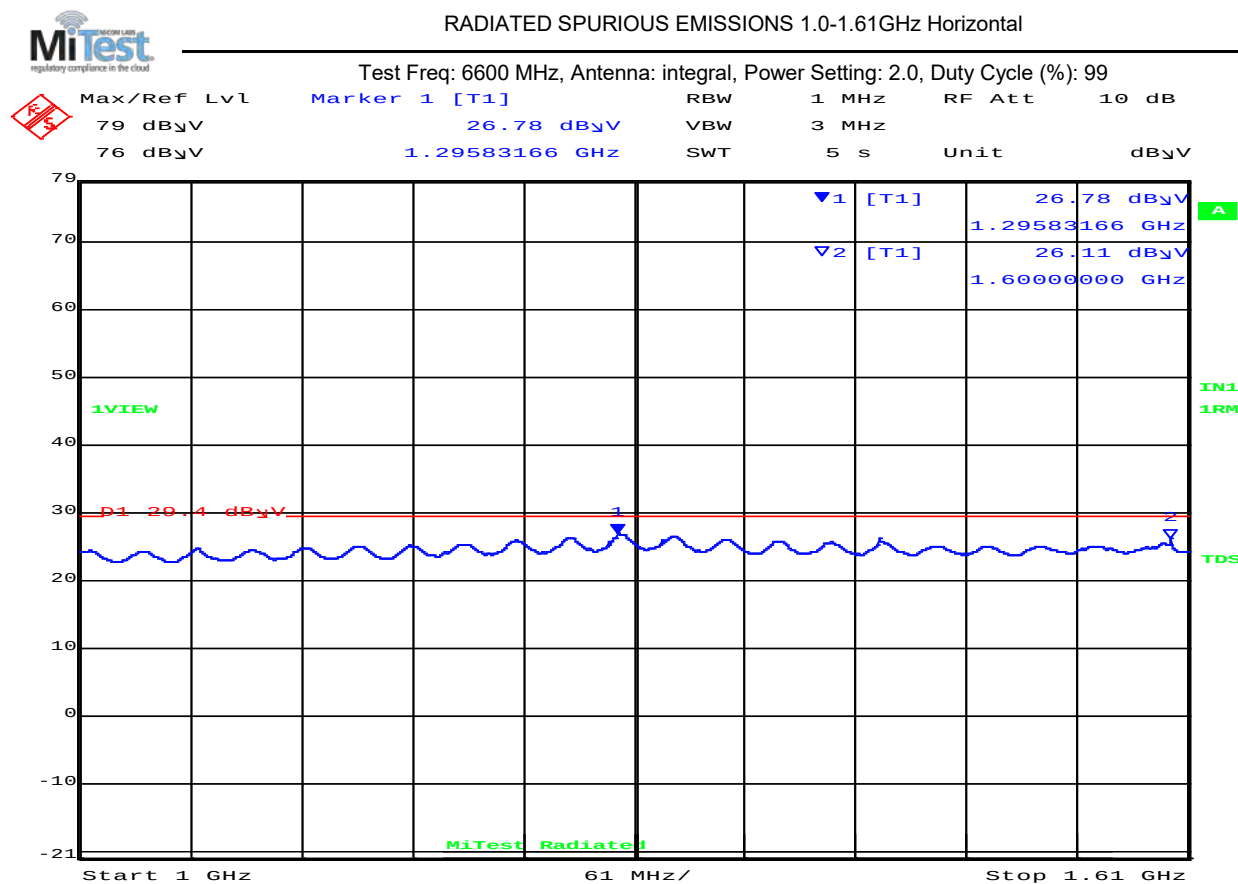
Title: Alereon AL5955, AL5930, AL5934
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6600 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 17:01:20

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1295.8	25.2	Average	Horizontal	150	0	29.4	-4.20	Pass
2	1600.0	26.2	Average	Horizontal	150	0	29.4	-3.20	Pass

Test Notes:
Laptop Removed

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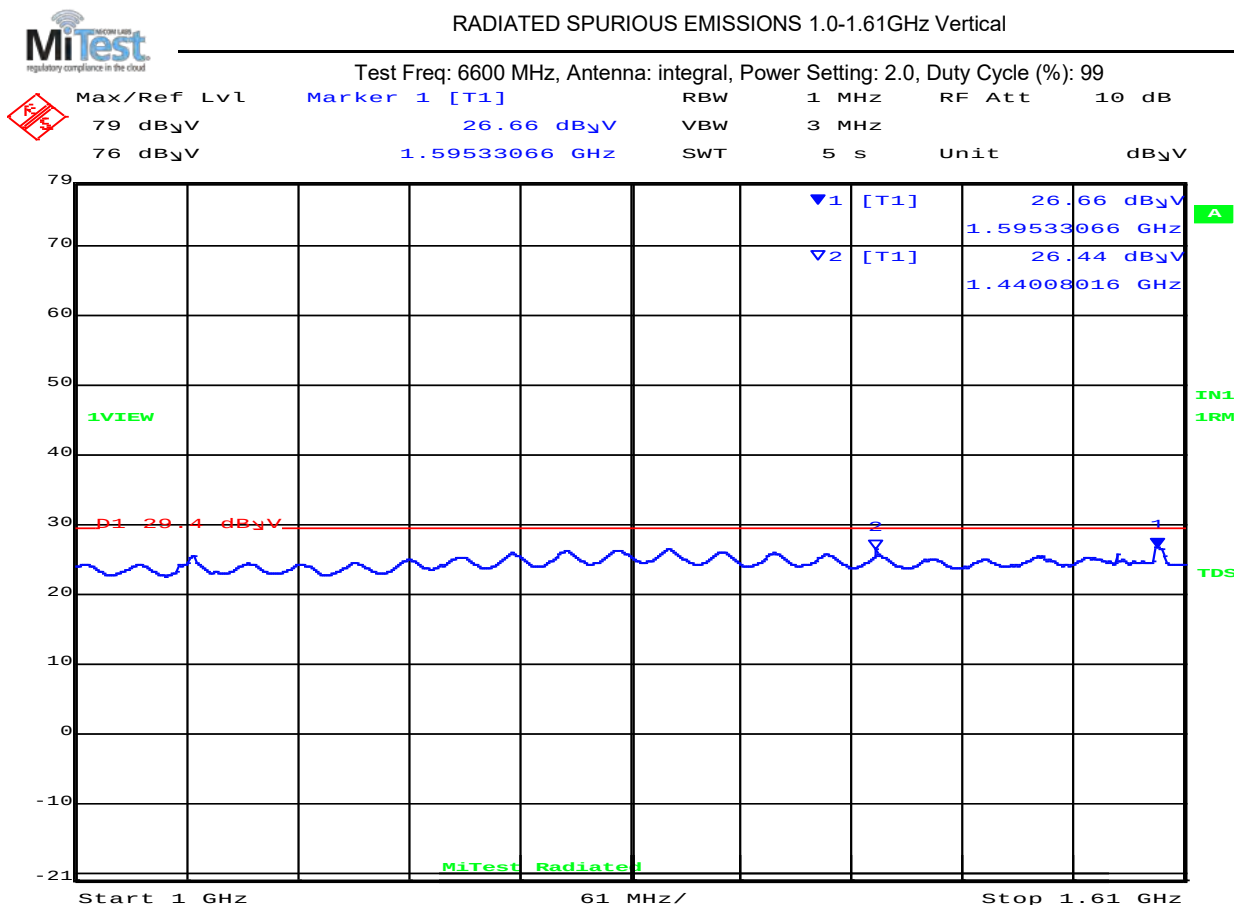


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.19
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 16:57:04

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1595.3	25.1	Average	Vertical	150	0	29.4	-4.30	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:
Laptop Removed

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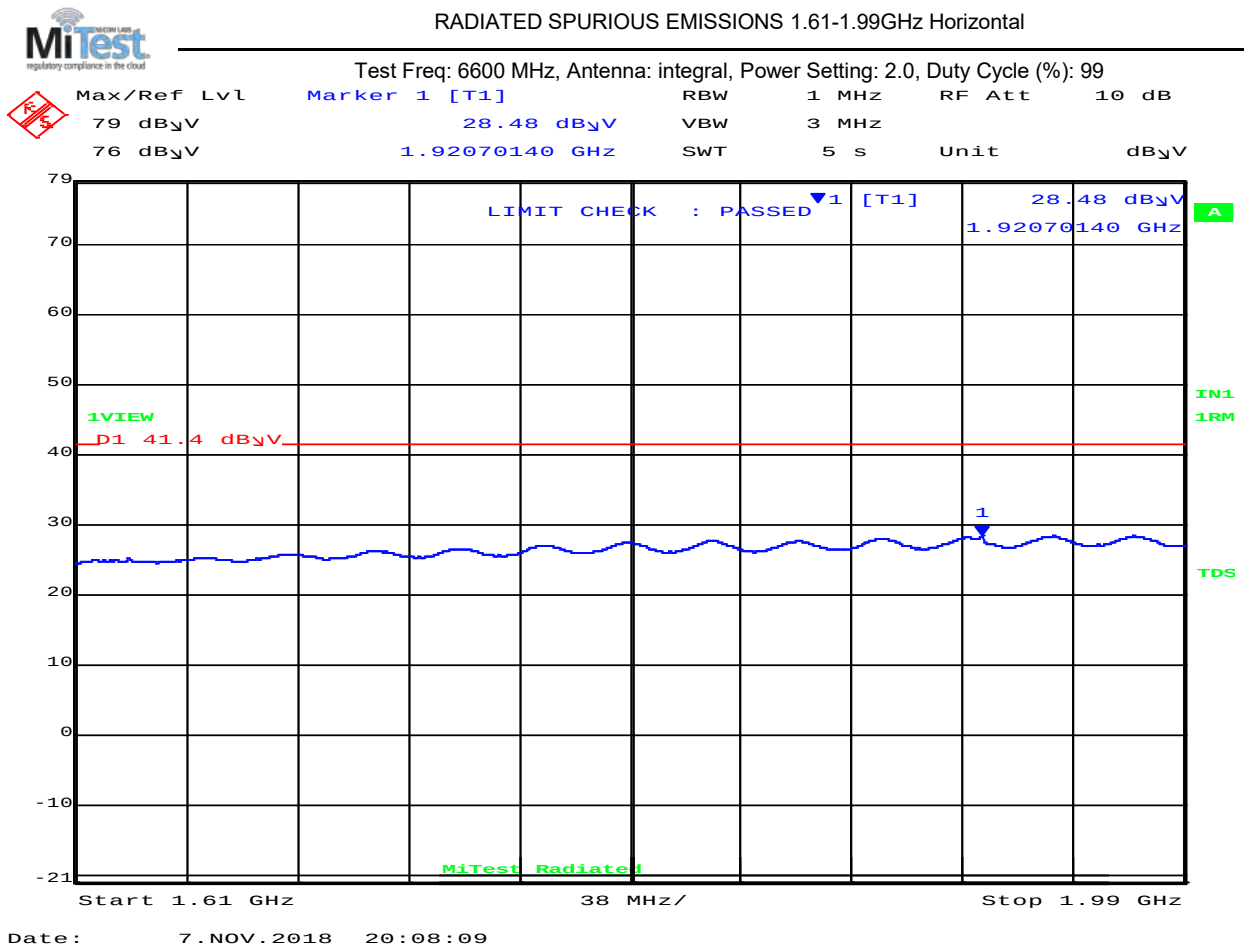


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit.									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

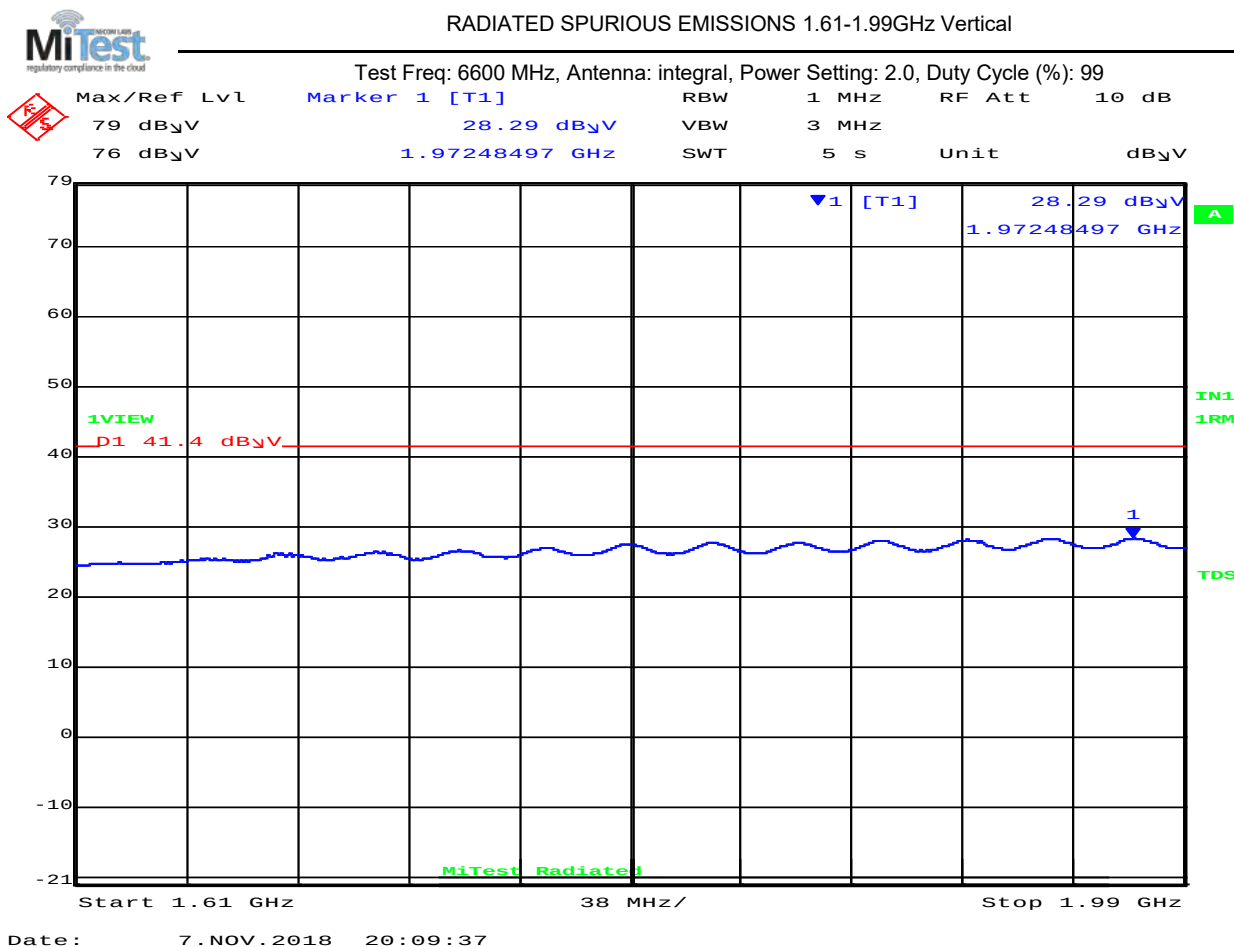


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

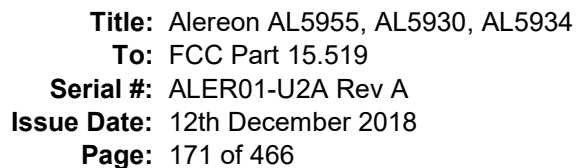
Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit.									
Test Notes: Laptop Removed									

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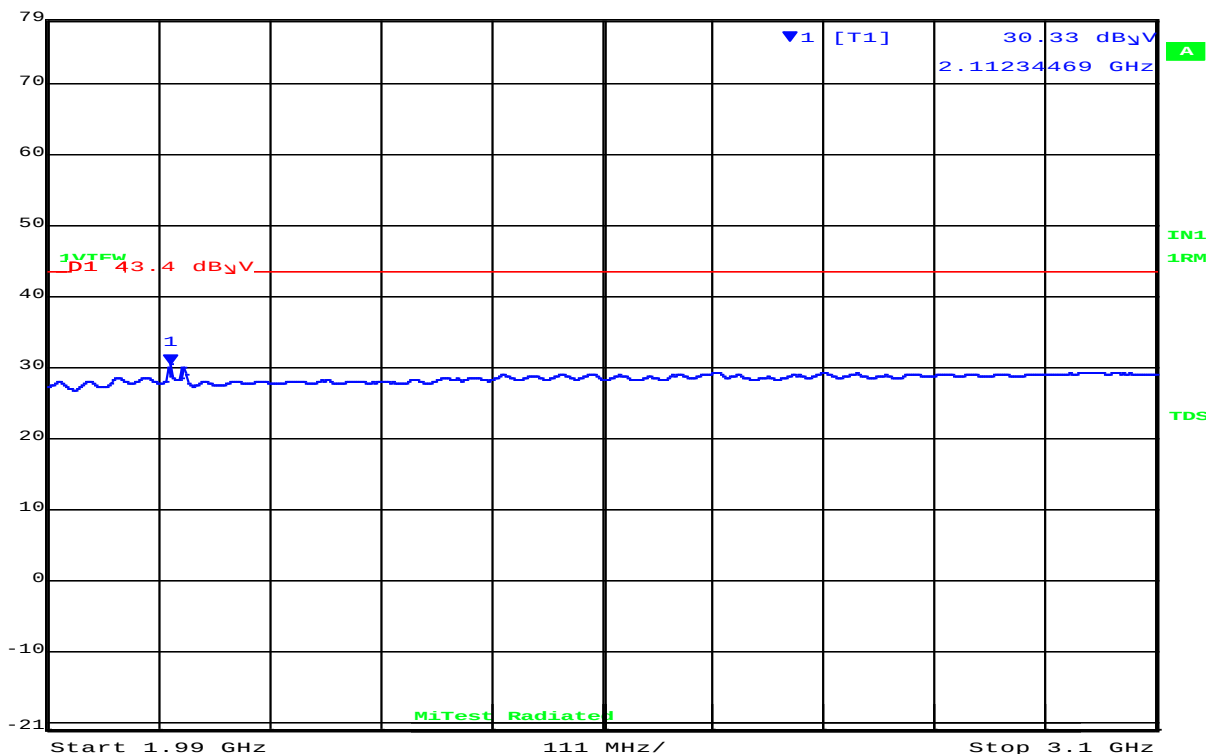


Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

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regulatory compliance in the cloud

Test Freq: 6600 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99

	Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
	79 dB μ V	30.33 dB μ V	VBW	3 MHz		
	76 dB μ V	2.11234469 GHz	SWT	5 s	Unit	dB μ V



Date: 7.NOV.2018 20:07:02

1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit.									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

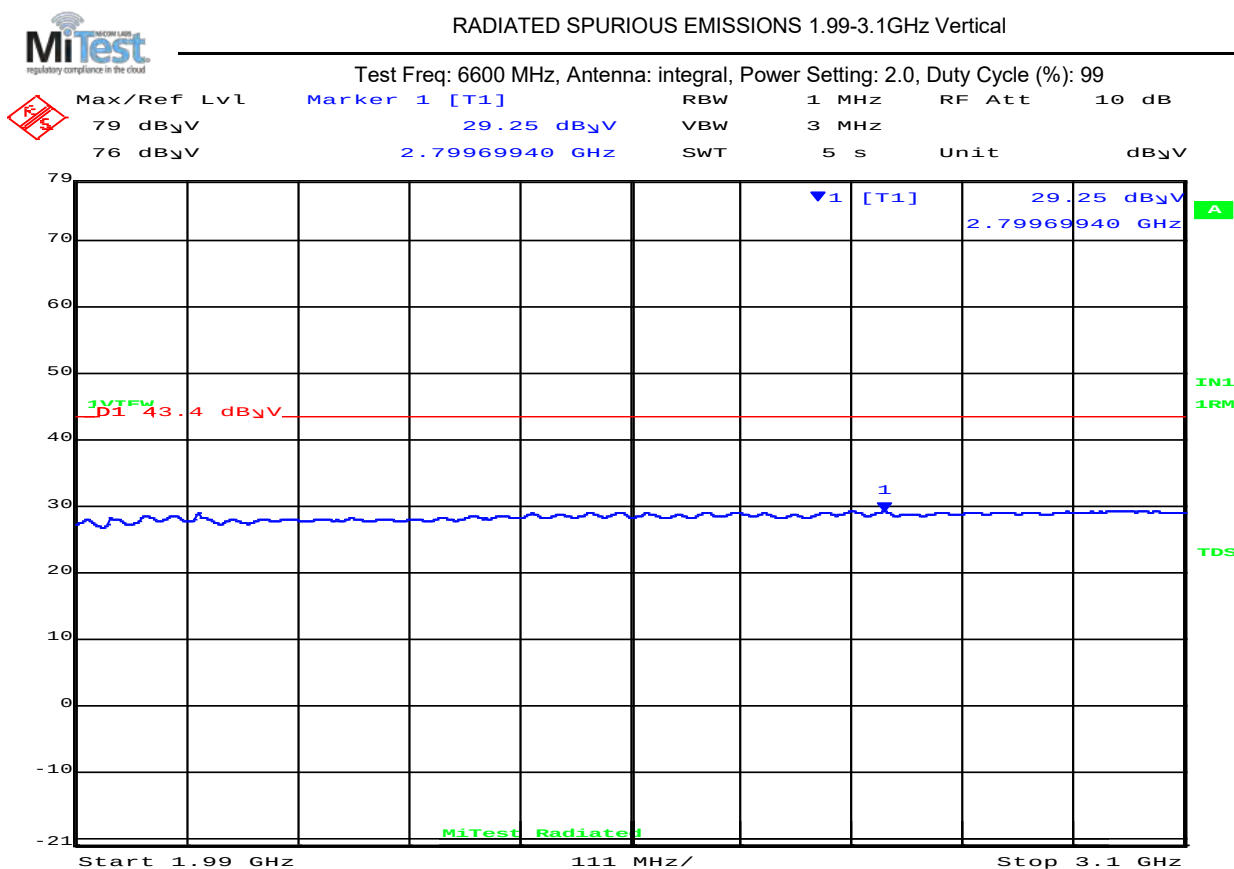


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 20:06:02

1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit.									
Test Notes: Laptop Removed									

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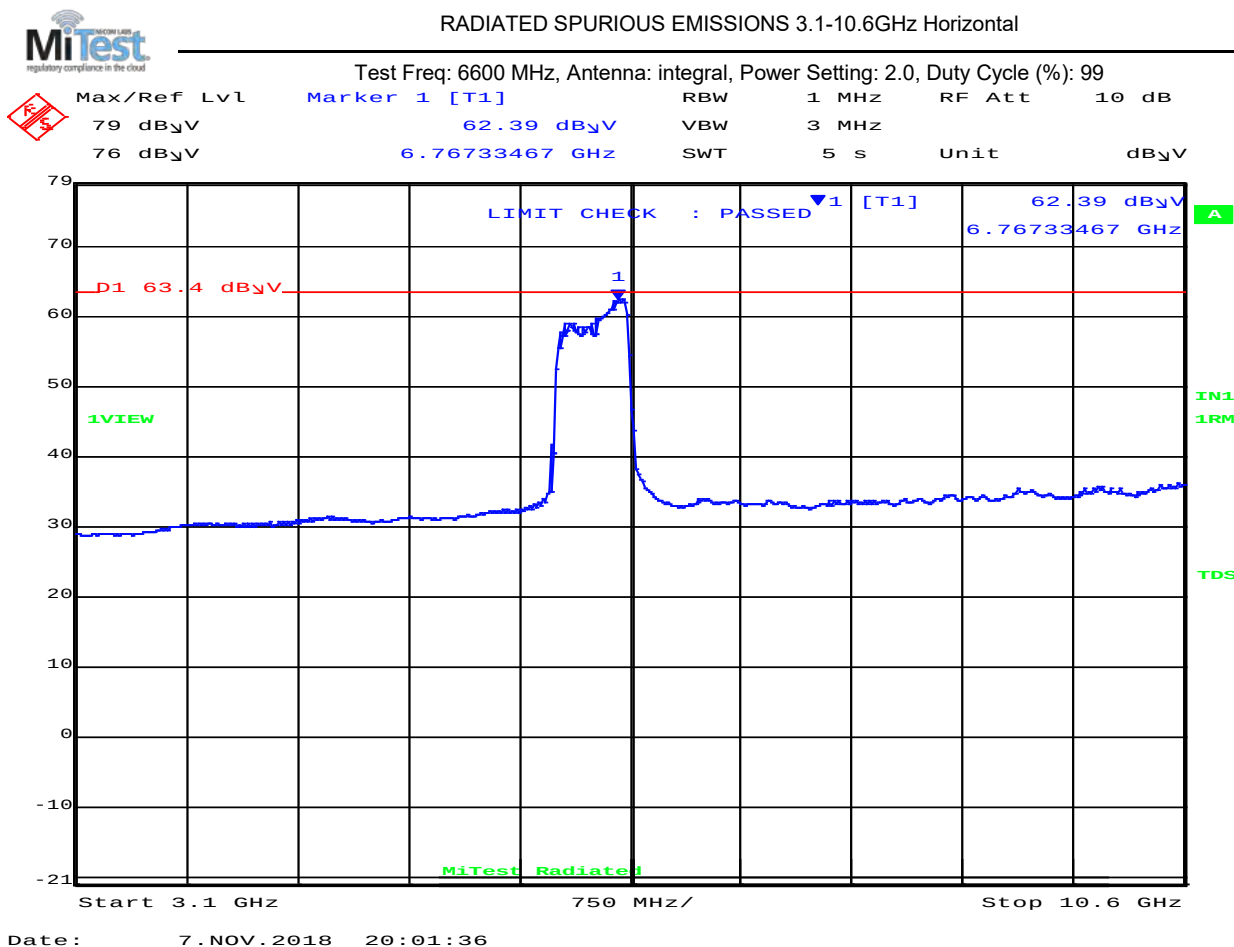


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	6767.3	61.5	Average	Horizontal	150	0	63.4	-1.90	Pass

Test Notes:

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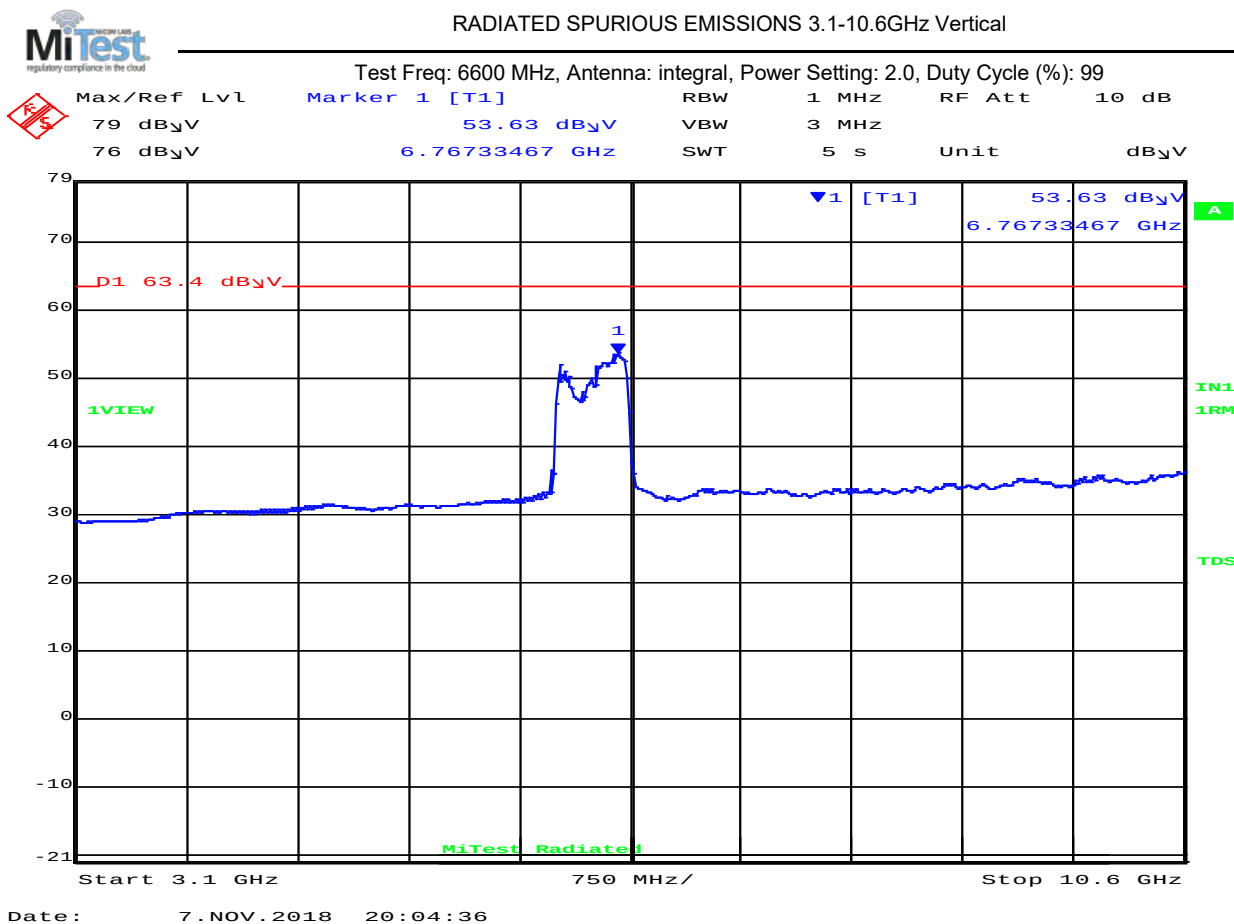


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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit.									
Test Notes:									

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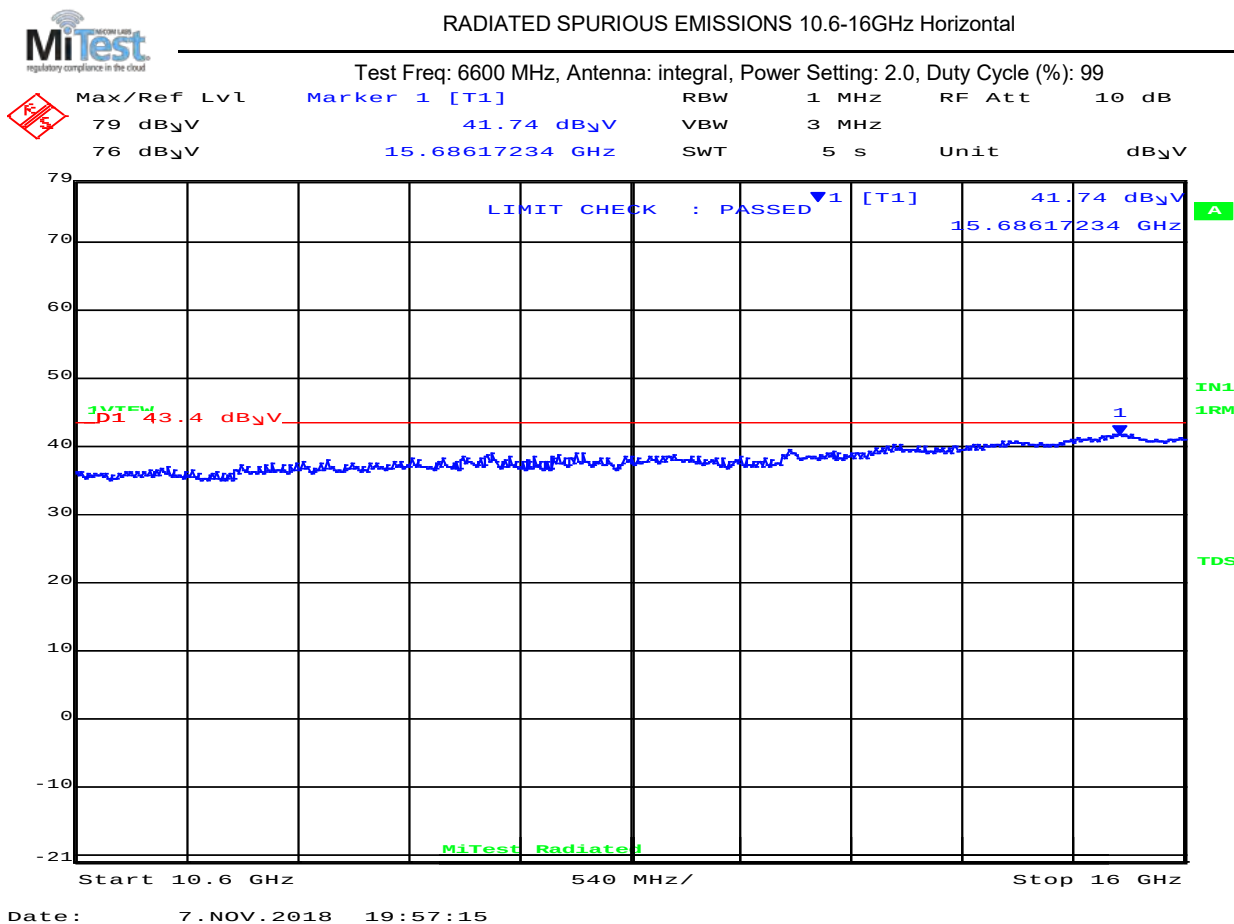


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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

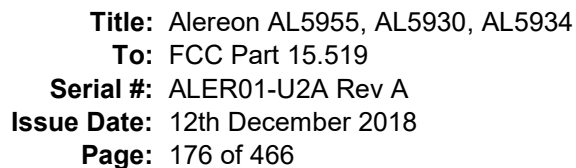
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.4	Average	Horizontal	150	0	43.4	-3.00	Pass
Test Notes:									

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

MiTest
regulatory compliance in the cloud

Test Freq: 6600 MHz, Antenna: integral, Power Setting: 2.0, Duty Cycle (%): 99

Max/Ref Lvl **Marker 1 [T1]** **RBW** **1 MHz** **RF Att** **10 dB**
79 dB μ V **41.74 dB μ V** **VBW** **3 MHz**
76 dB μ V **15.68617234 GHz** **SWT** **5 s** **Unit** **dB μ V**

LIMIT CHECK : PASSED **1 [T1]** **41.74 dB μ V** **15.68617234 GHz**

1 VTFW **D1 43.4 dB μ V** **1**

MiTest Radiated

Start 10.6 GHz **540 MHz/** **Stop 16 GHz**

Date: 7.NOV.2018 19:55:56

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	40.3	Average	Vertical	150	0	43.4	-3.10	Pass

Test Notes:

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com

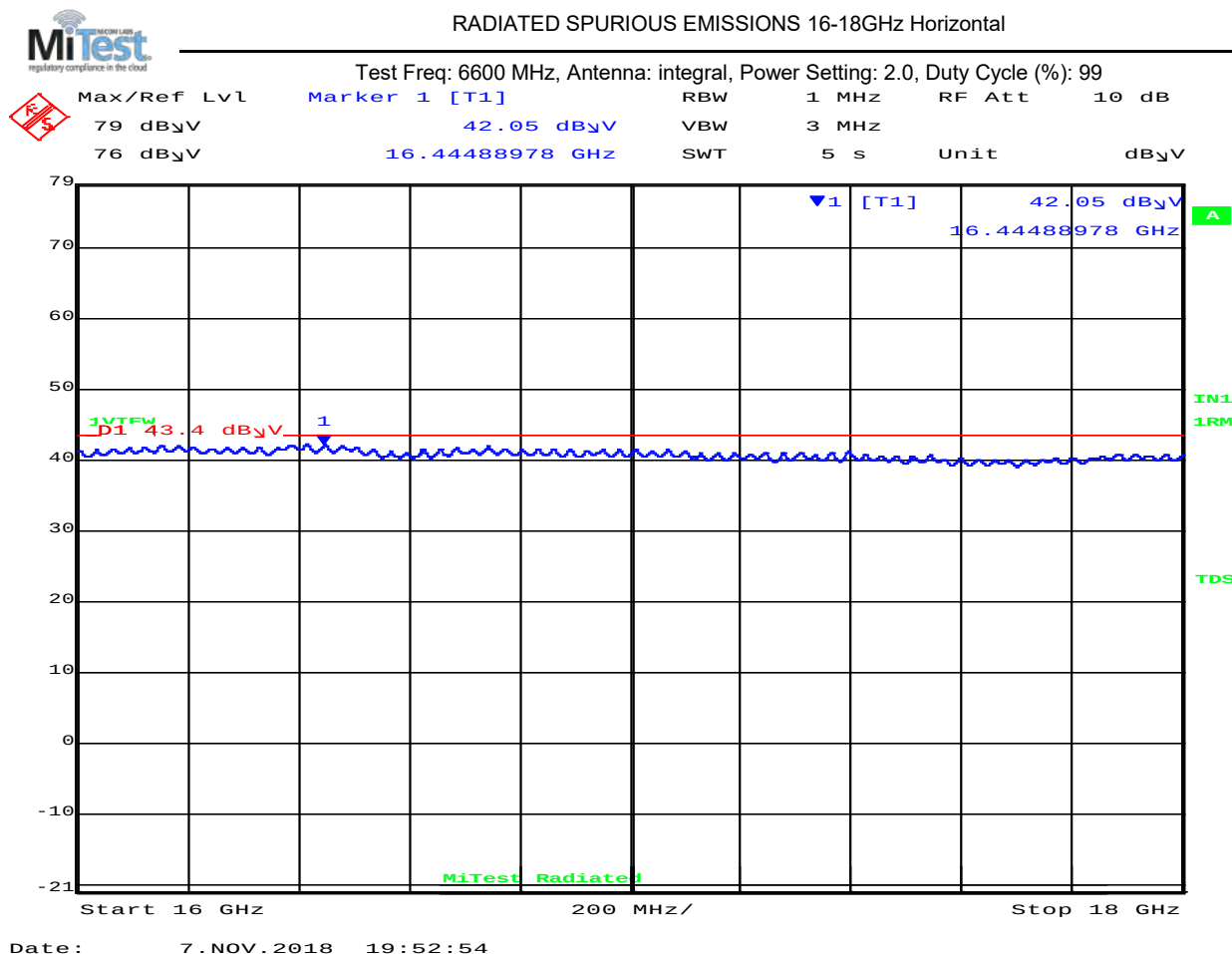


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.9	40.8	Average	Horizontal	150	0	43.4	-2.60	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

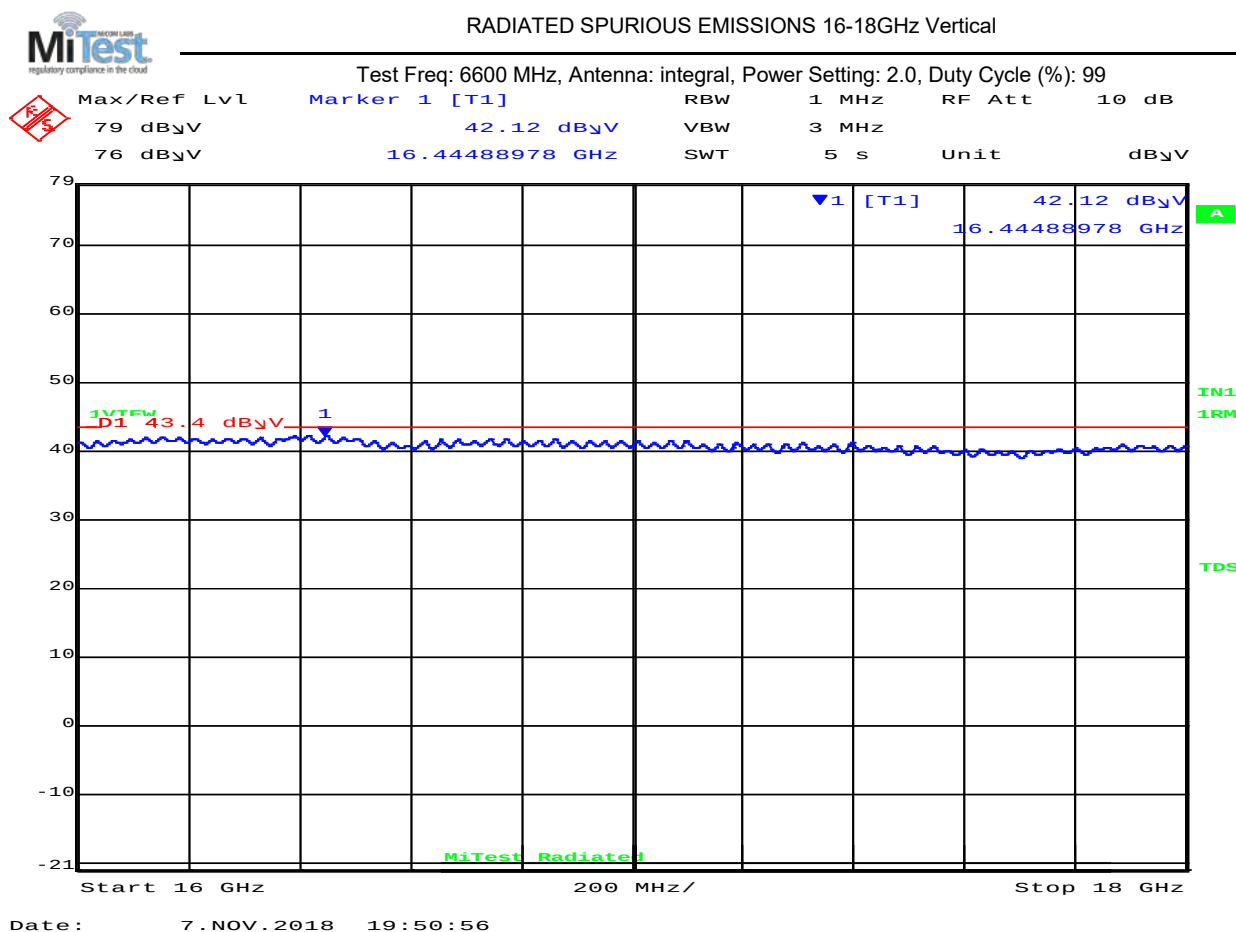


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	6600.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.9	40.9	Average	Vertical	150	0	43.4	-2.50	Pass

Test Notes:

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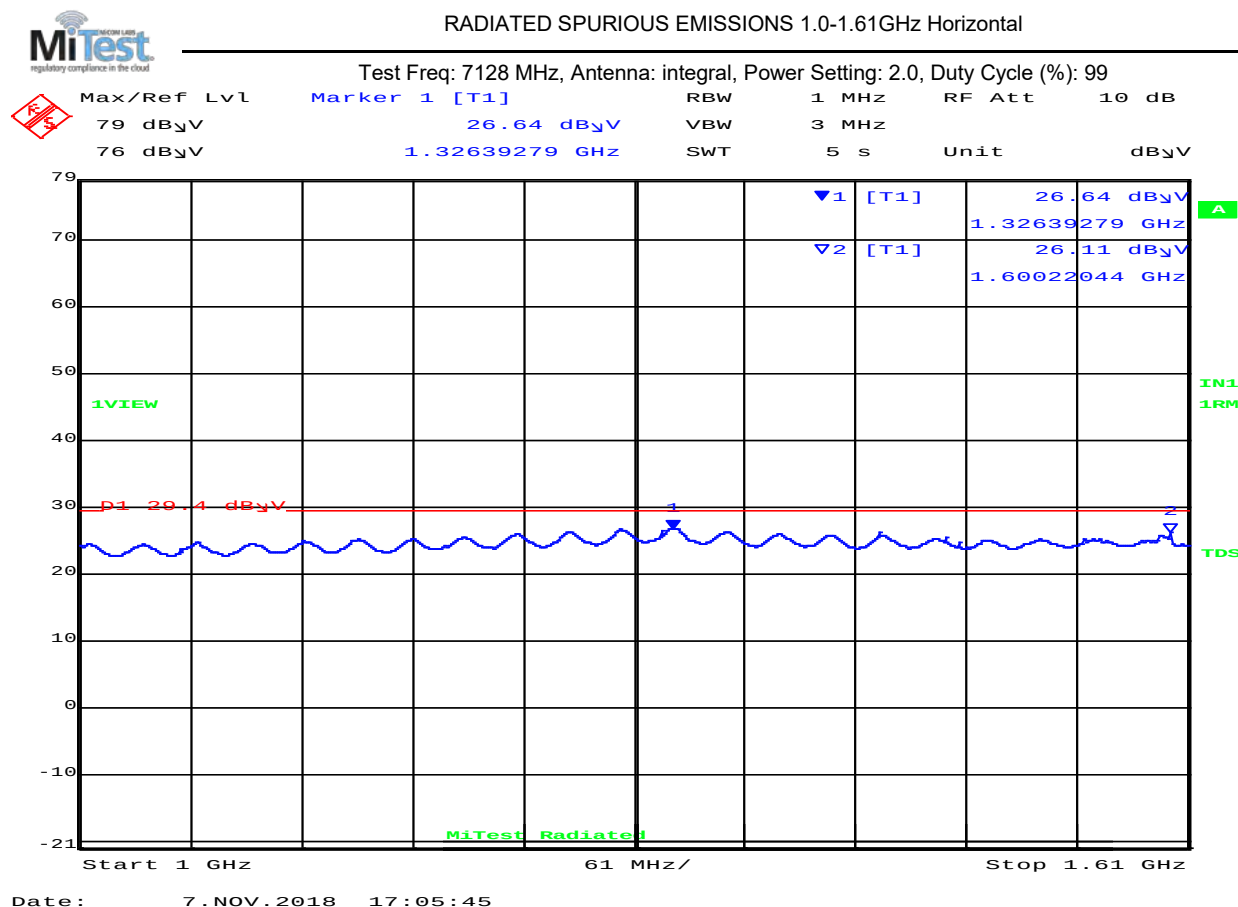
Title: Alereon AL5955, AL5930, AL5934
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7128 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.4	24.9	Average	Horizontal	150	0	29.4	-4.50	Pass
2	1600.2	26.1	Average	Horizontal	150	0	29.4	-3.30	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

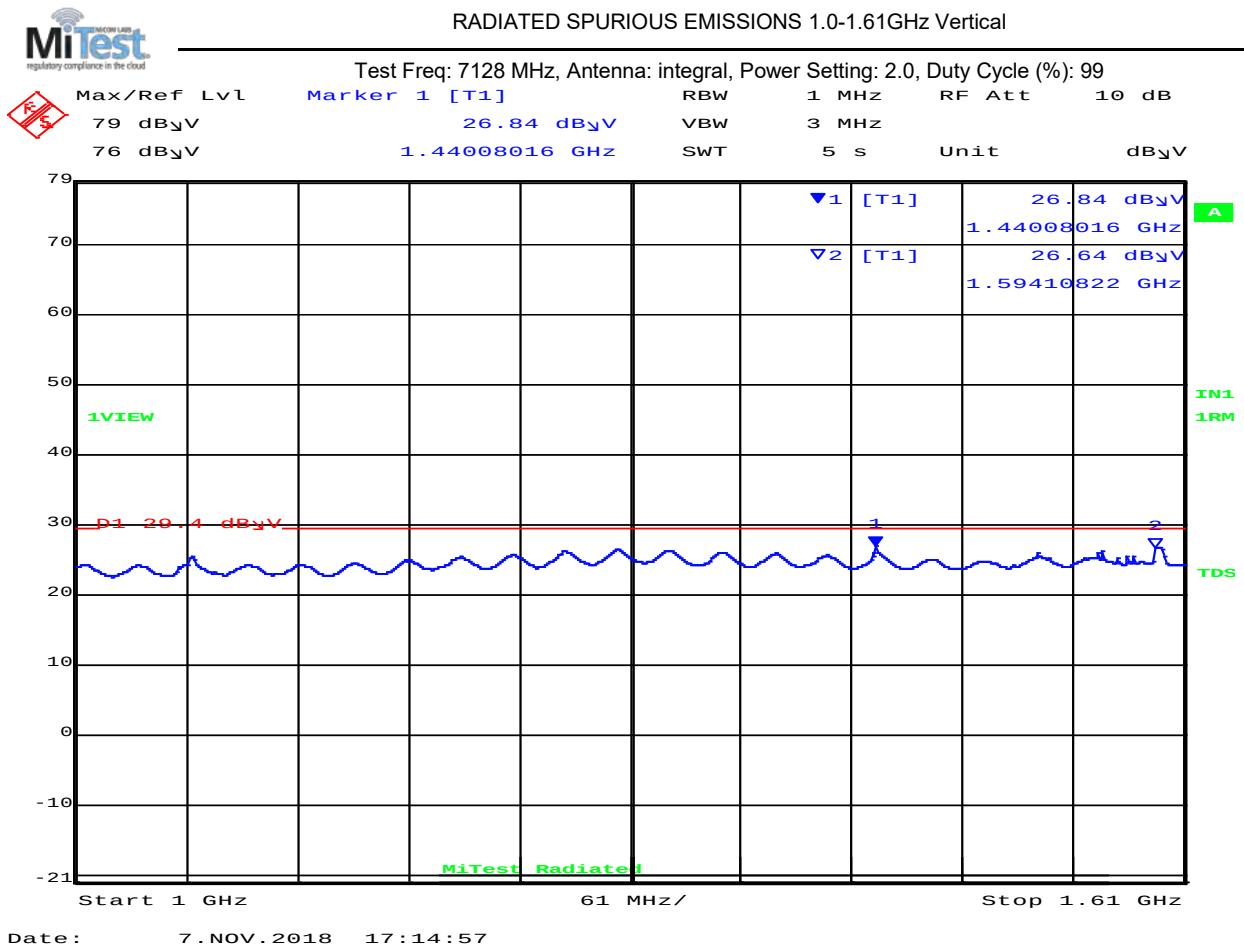


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1440.1	25.7	Average	Vertical	150	0	29.4	-3.70	Pass
2	1594.1	25.4	Average	Vertical	150	0	29.4	-4.00	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

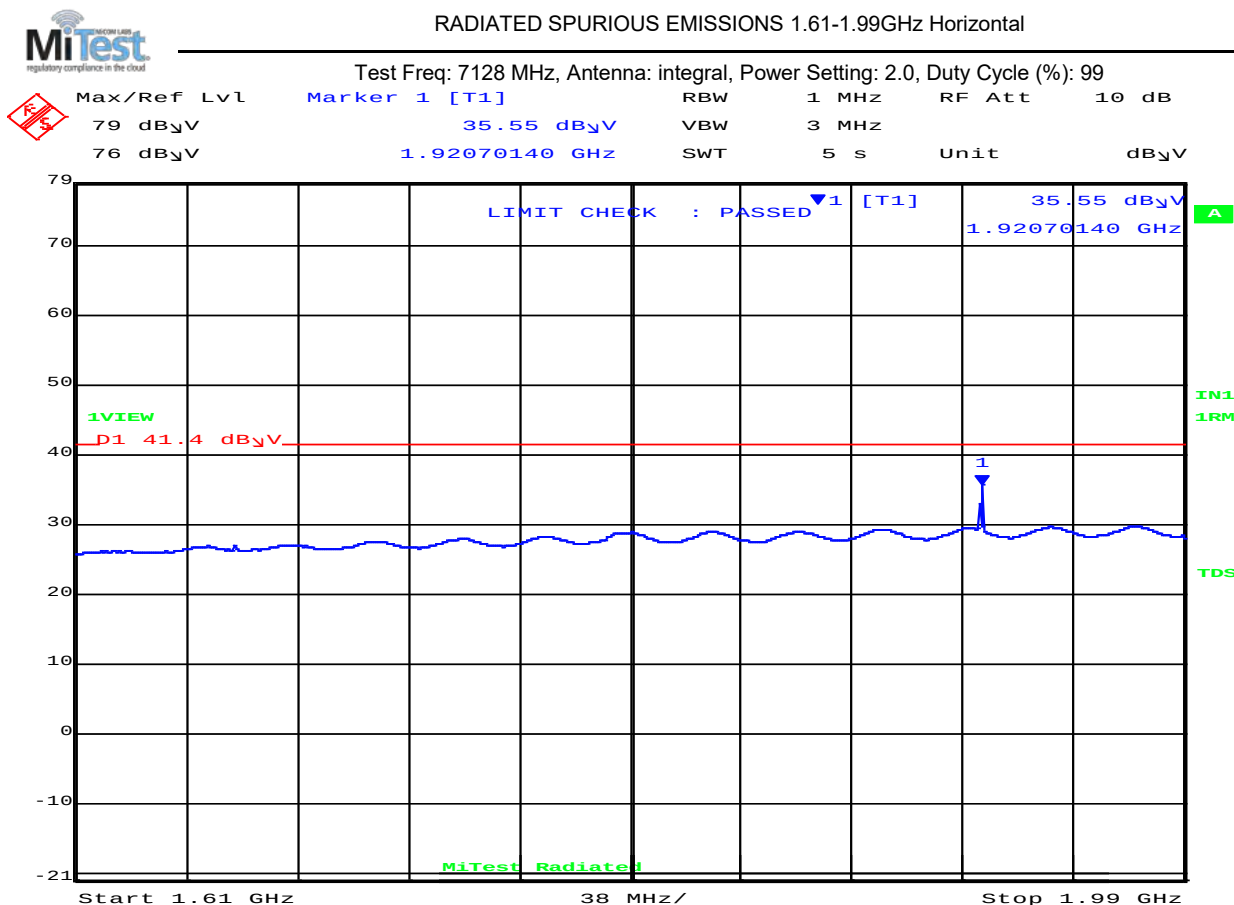


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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:12:53

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1920.7	35.7	Average	Horizontal	150	0	41.4	-5.70	Pass

Test Notes:

Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

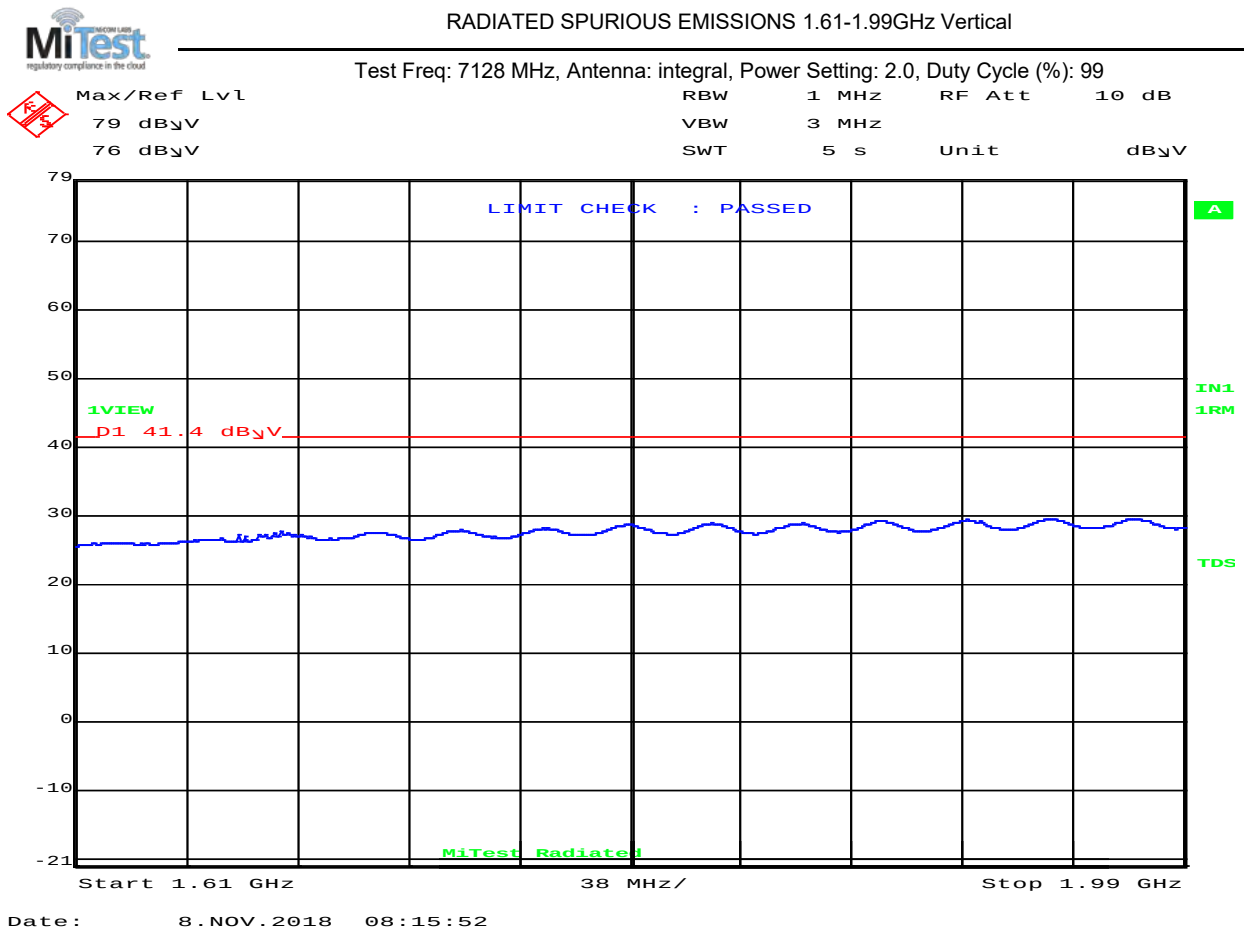


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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

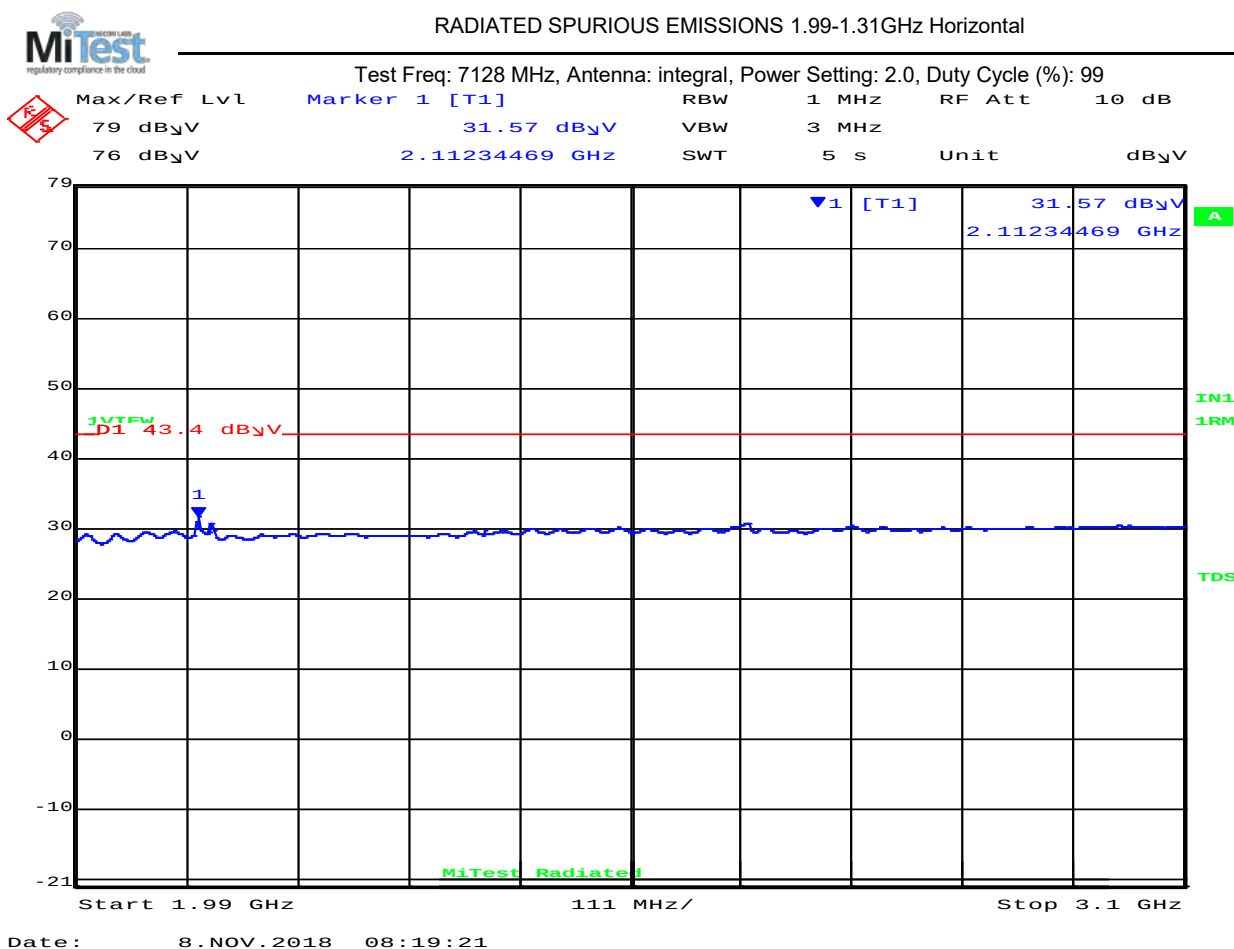


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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

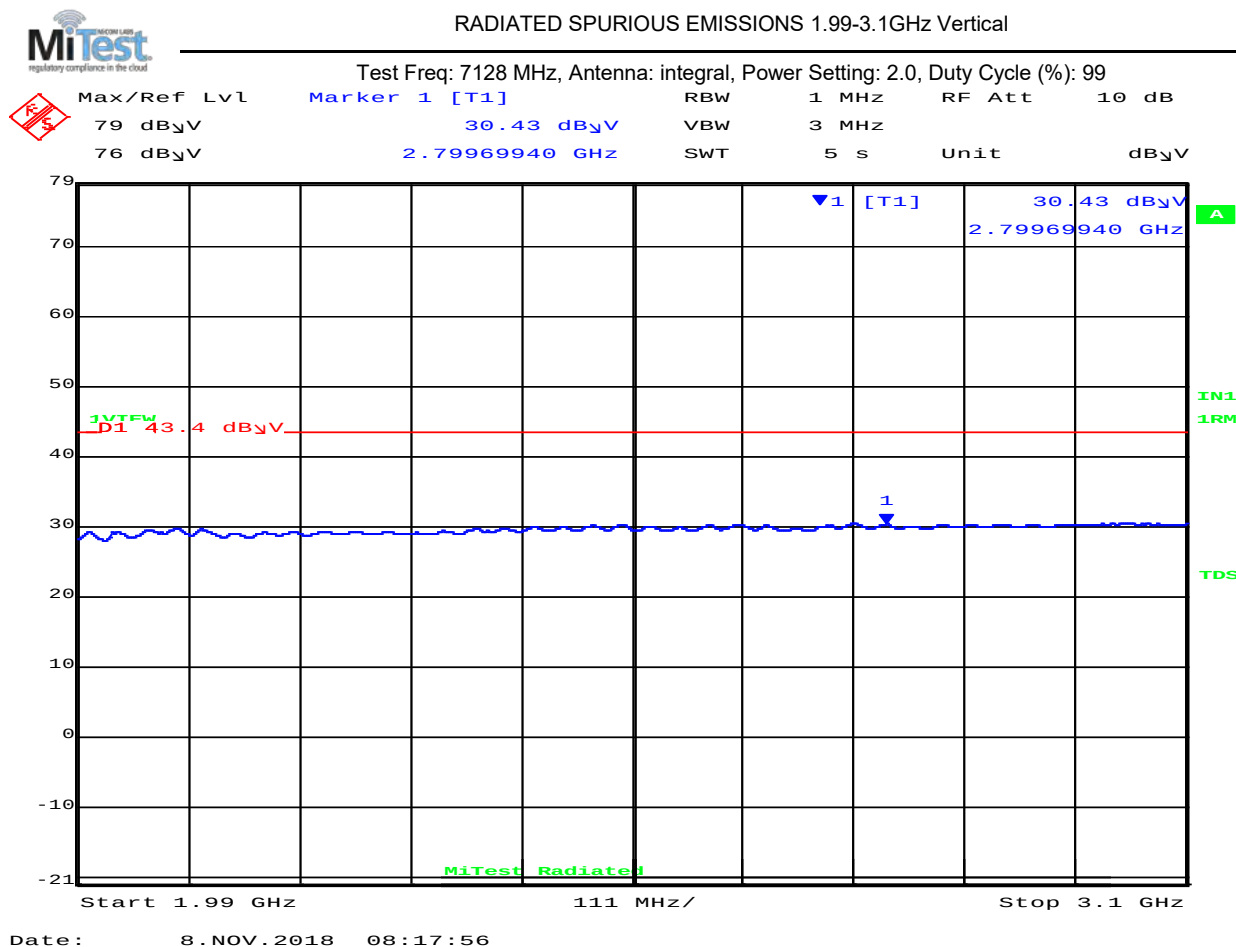


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

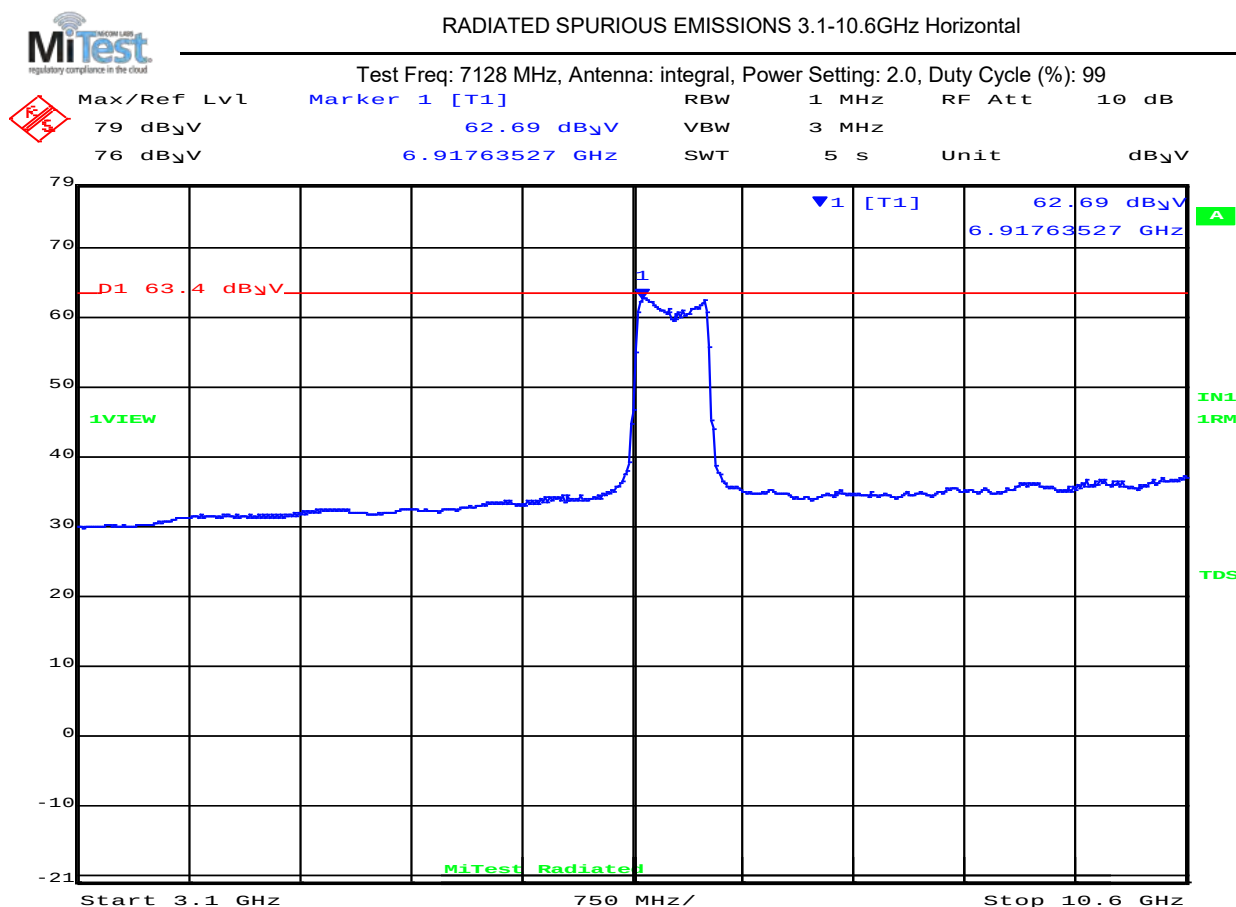


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:21:19

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	6917.6	61.8	Average	Horizontal	150	0	63.4	-1.60	Pass

Test Notes:

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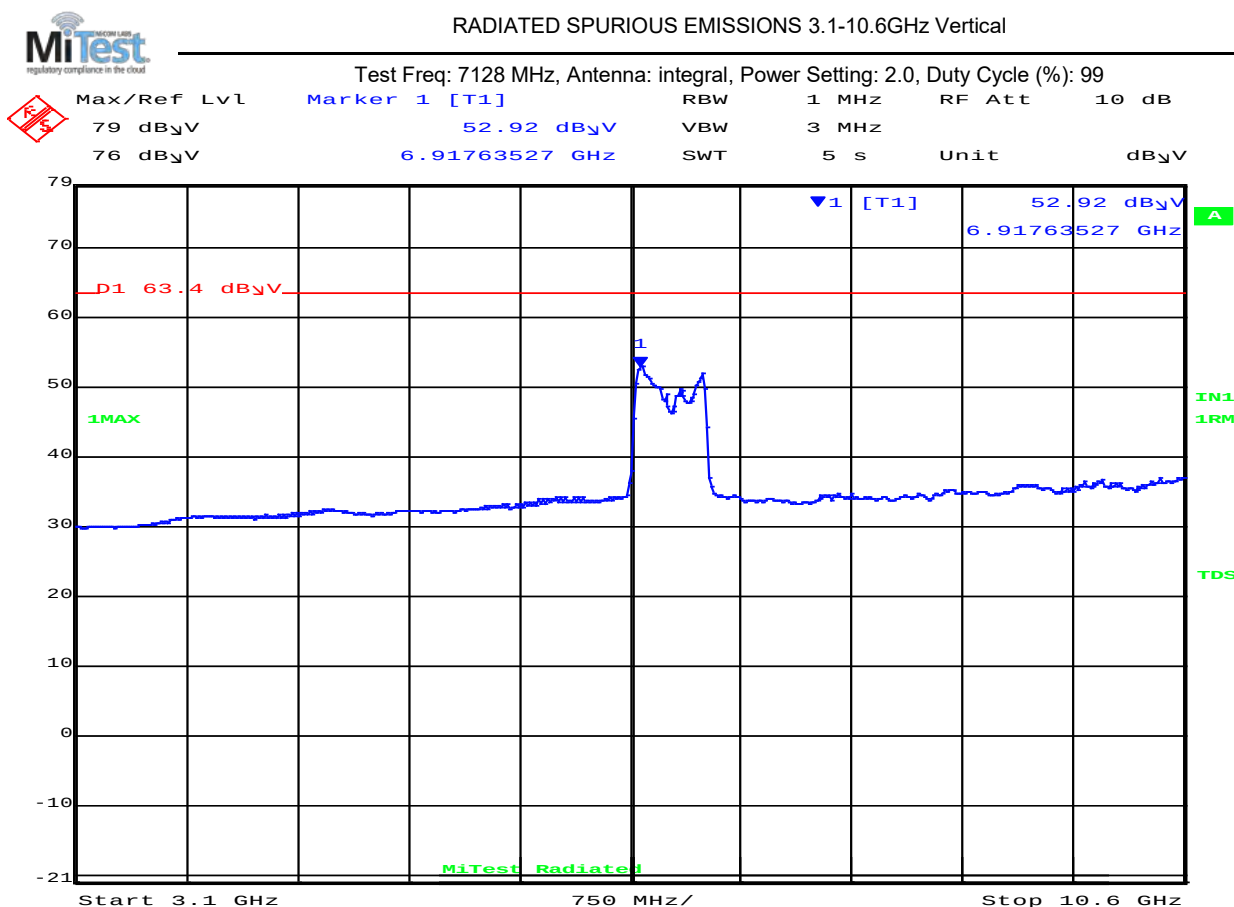


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:23:45

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes:									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

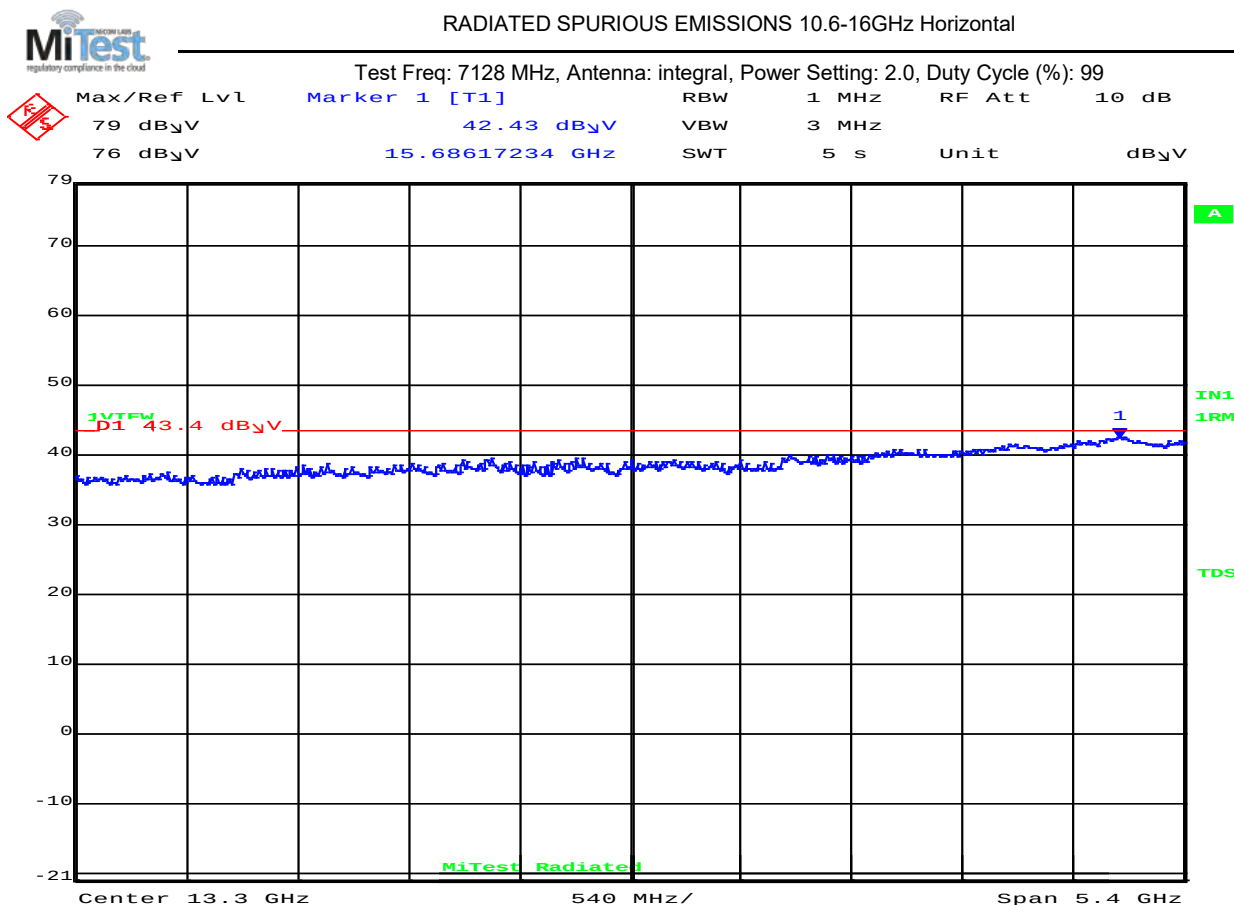


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:37:00

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	41.0	Average	Horizontal	150	0	43.4	-2.40	Pass

Test Notes:

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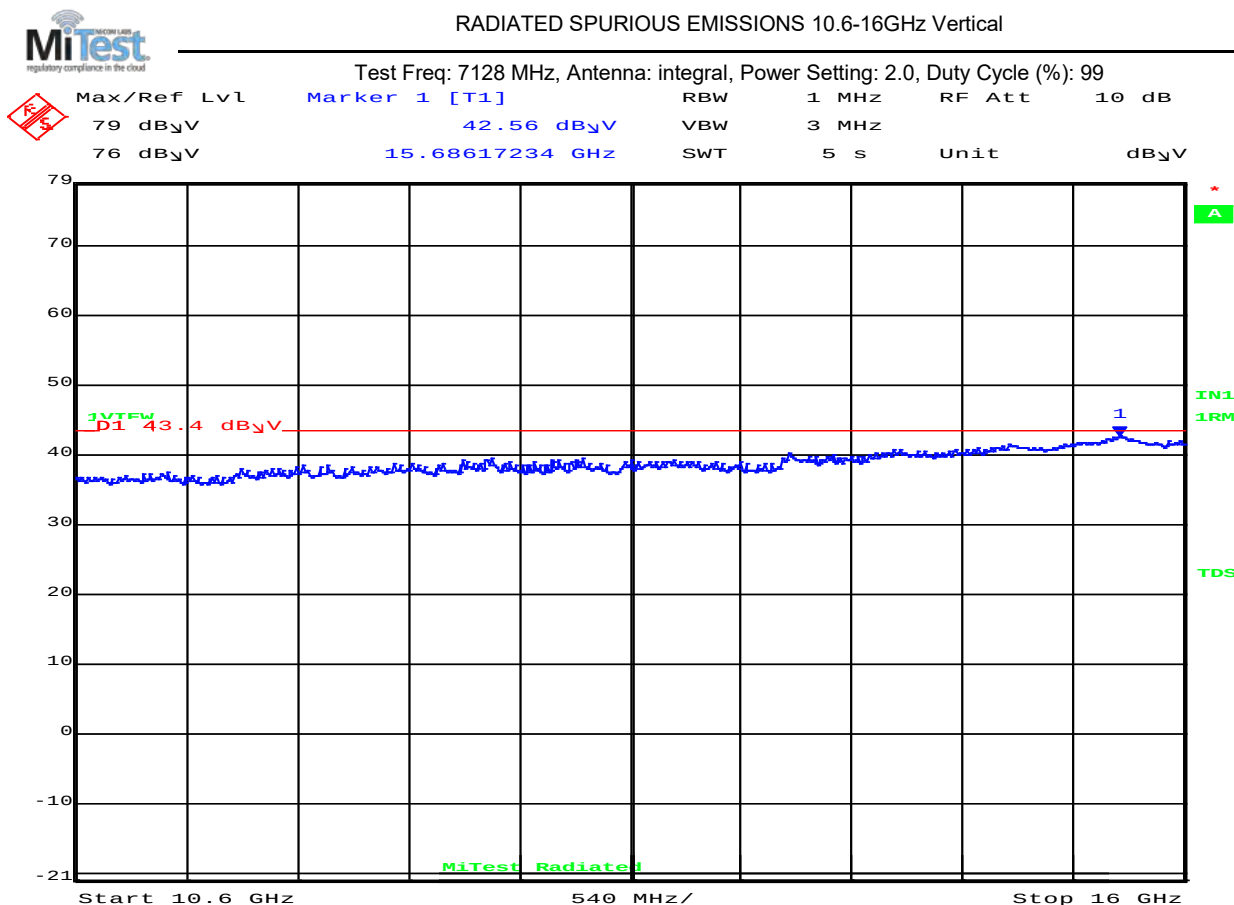


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:34:47

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	41.1	Average	Vertical	150	0	43.4	-2.30	Pass

Test Notes:

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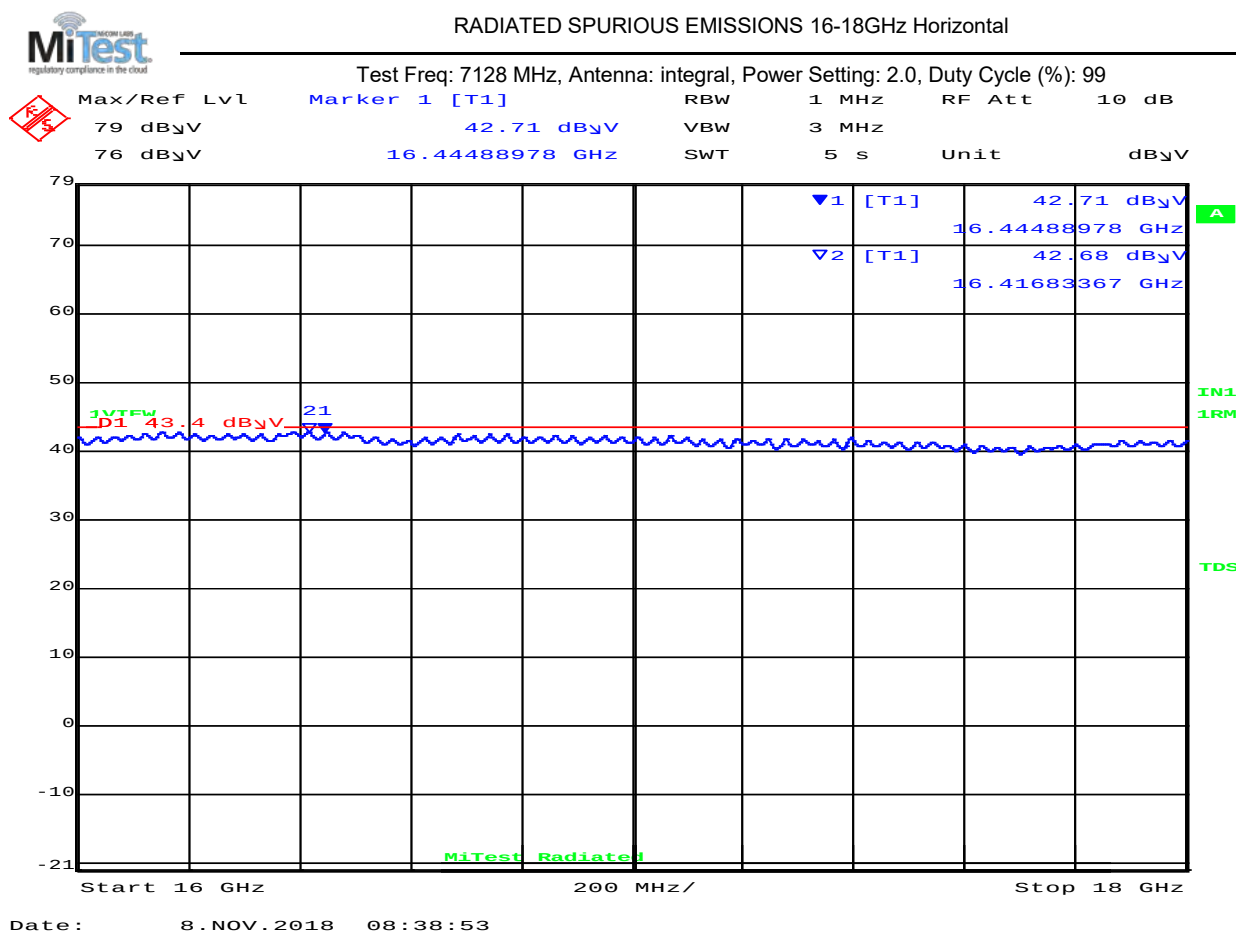


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16448.9	41.5	Average	Horizontal	150	0	43.4	-1.90	Pass
2	16416.8	41.6	Average	Horizontal	150	0	43.4	-1.80	Pass

Test Notes:

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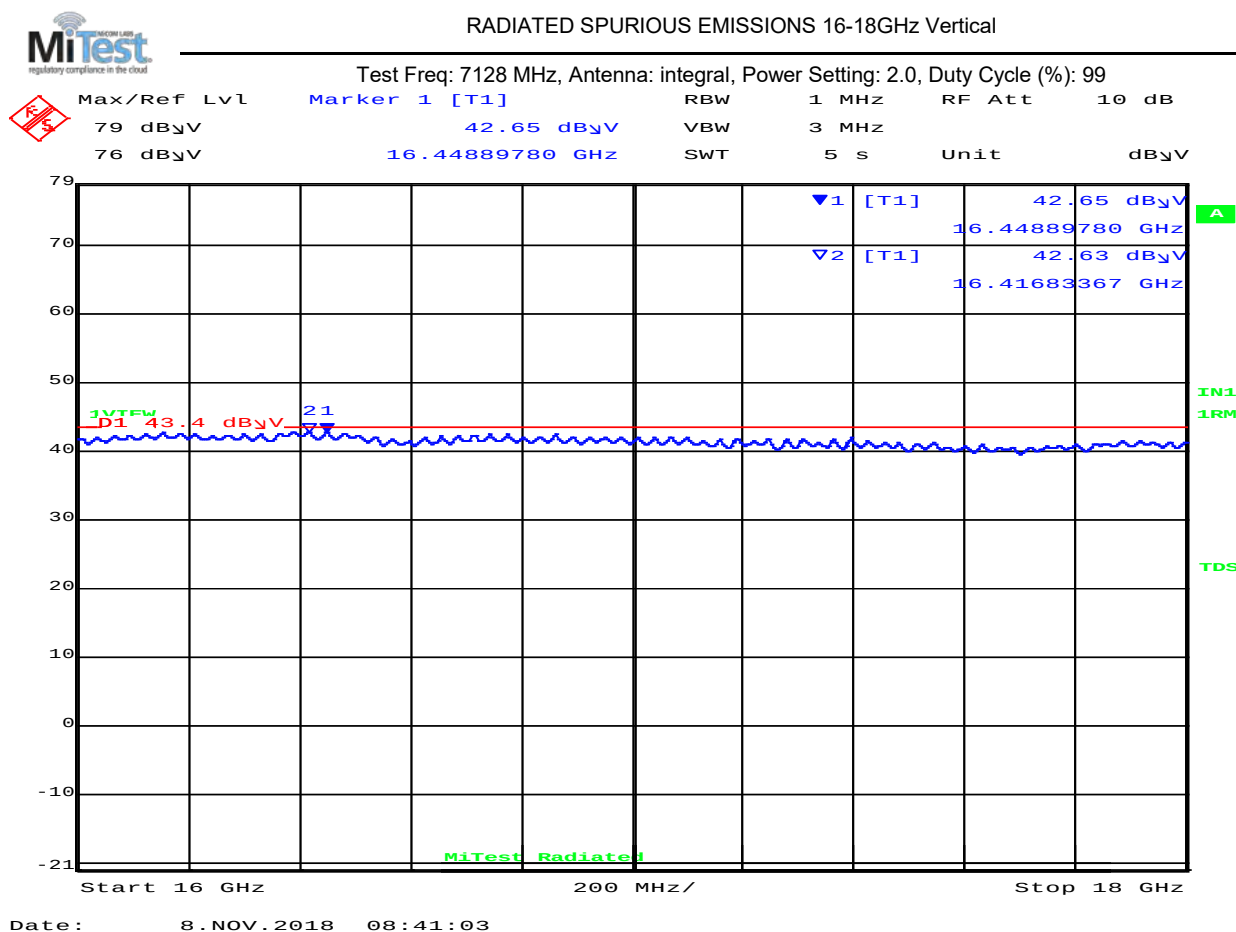


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-0.2	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7128.00	Data Rate:	
Power Setting:	2.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16448.9	41.6	Average	Vertical	150	0	43.4	-1.80	Pass
2	16416.8	41.7	Average	Vertical	150	0	43.4	-1.70	Pass

Test Notes:

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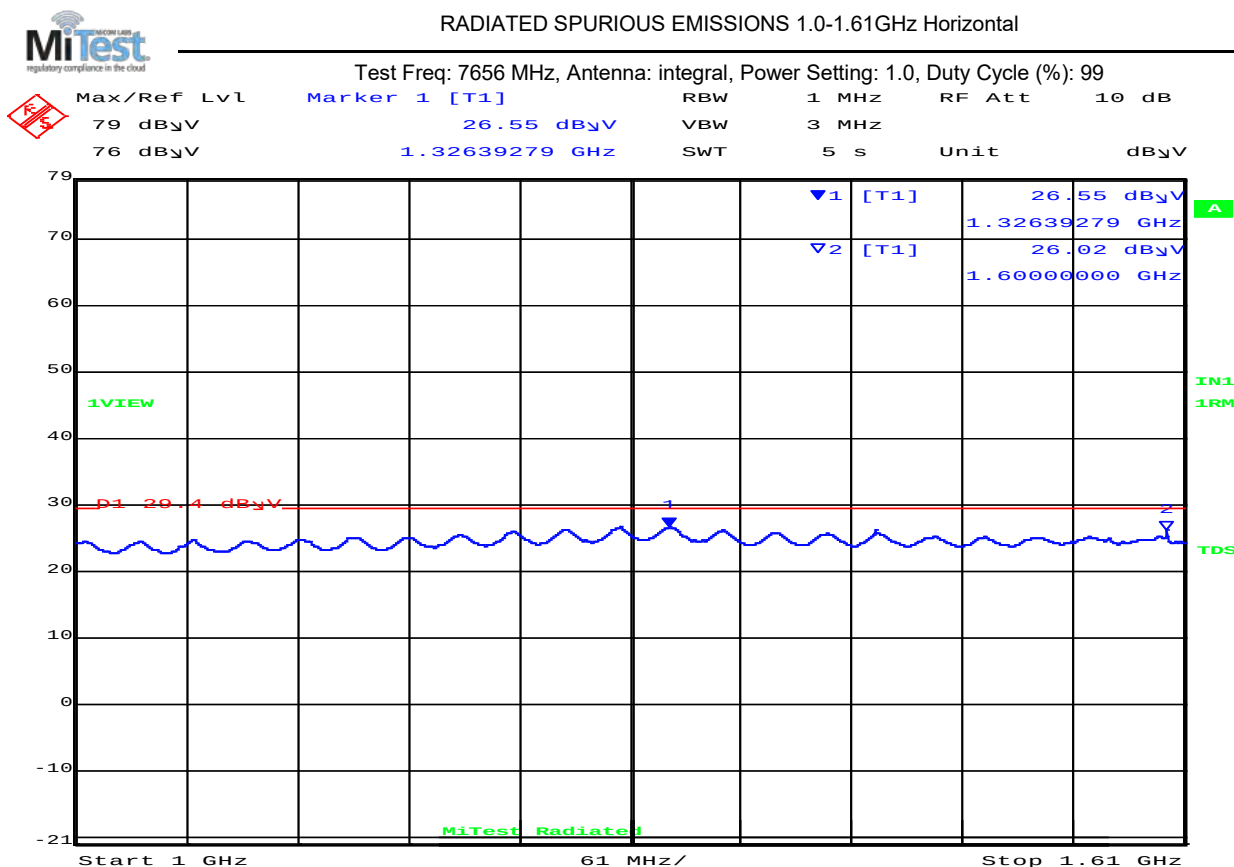
Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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7656 MHz (Covers Band Group 3 TFC 7 and Band Group 6 TFC 5)

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 17:40:46

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.4	24.8	Average	Horizontal	150	0	29.4	-4.60	Pass
2	1600.0	26.9	Average	Horizontal	150	0	29.4	-2.50	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

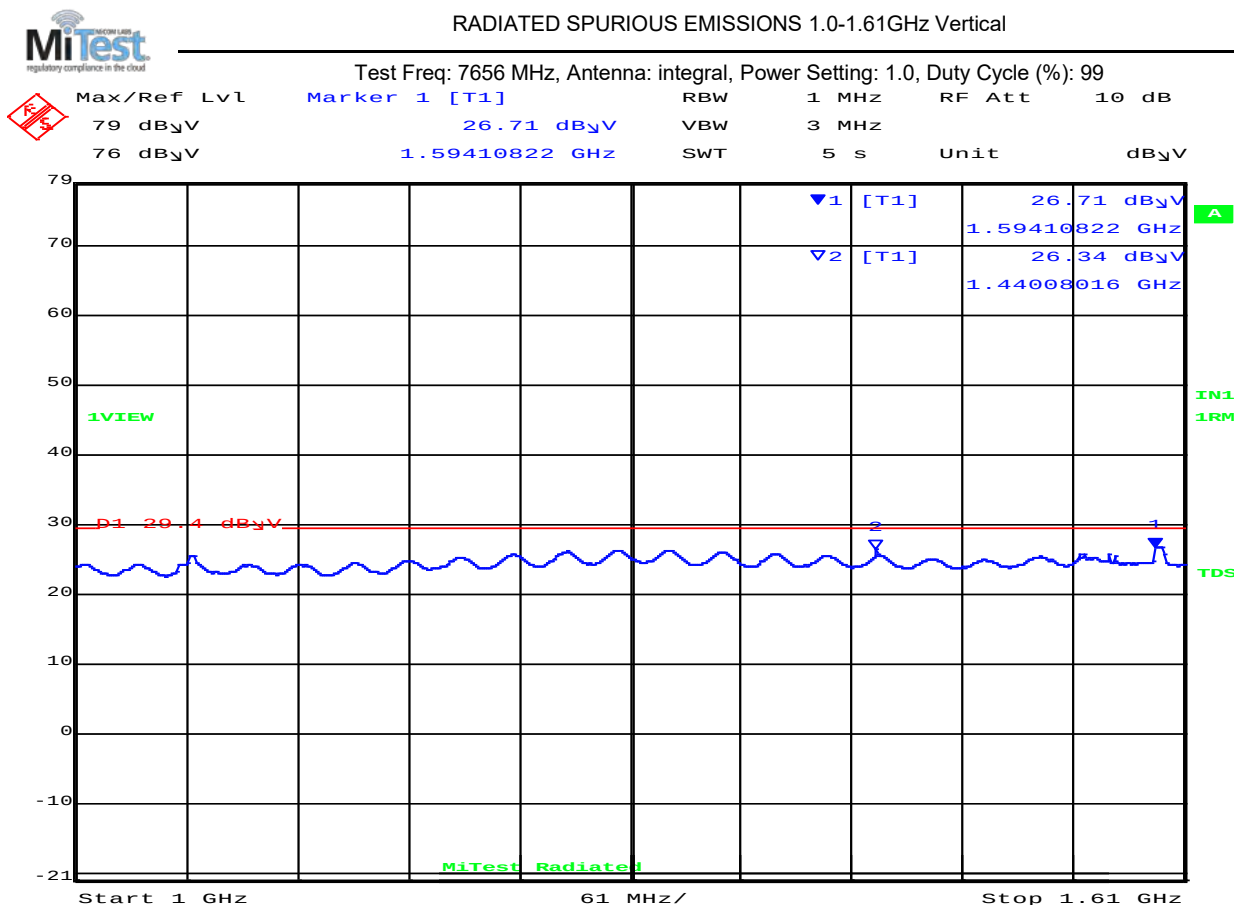


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 17:36:56

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1594.1	25.0	Average	Vertical	150	0	29.4	-4.40	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:

Laptop Removed

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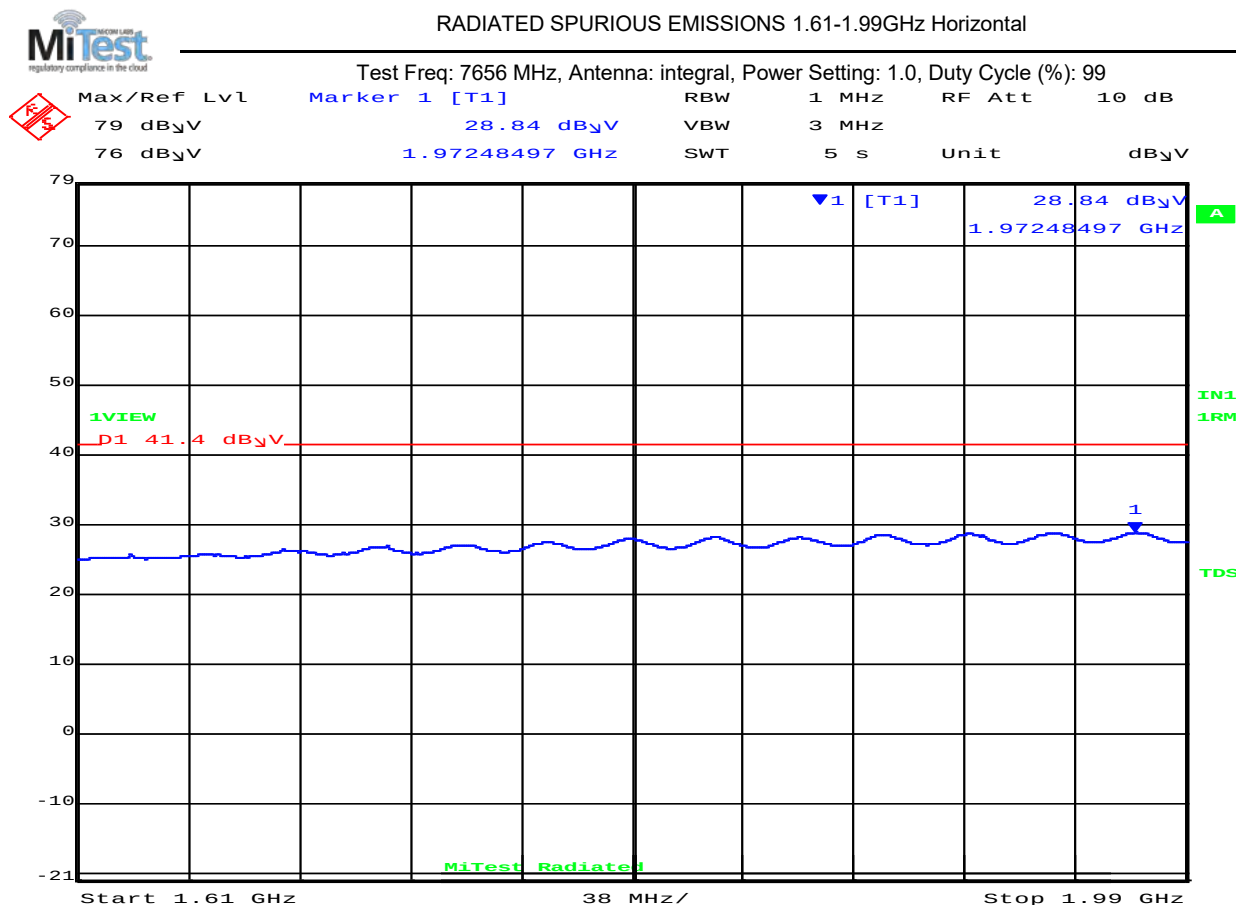


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:02:23

1610.00 – 1990.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

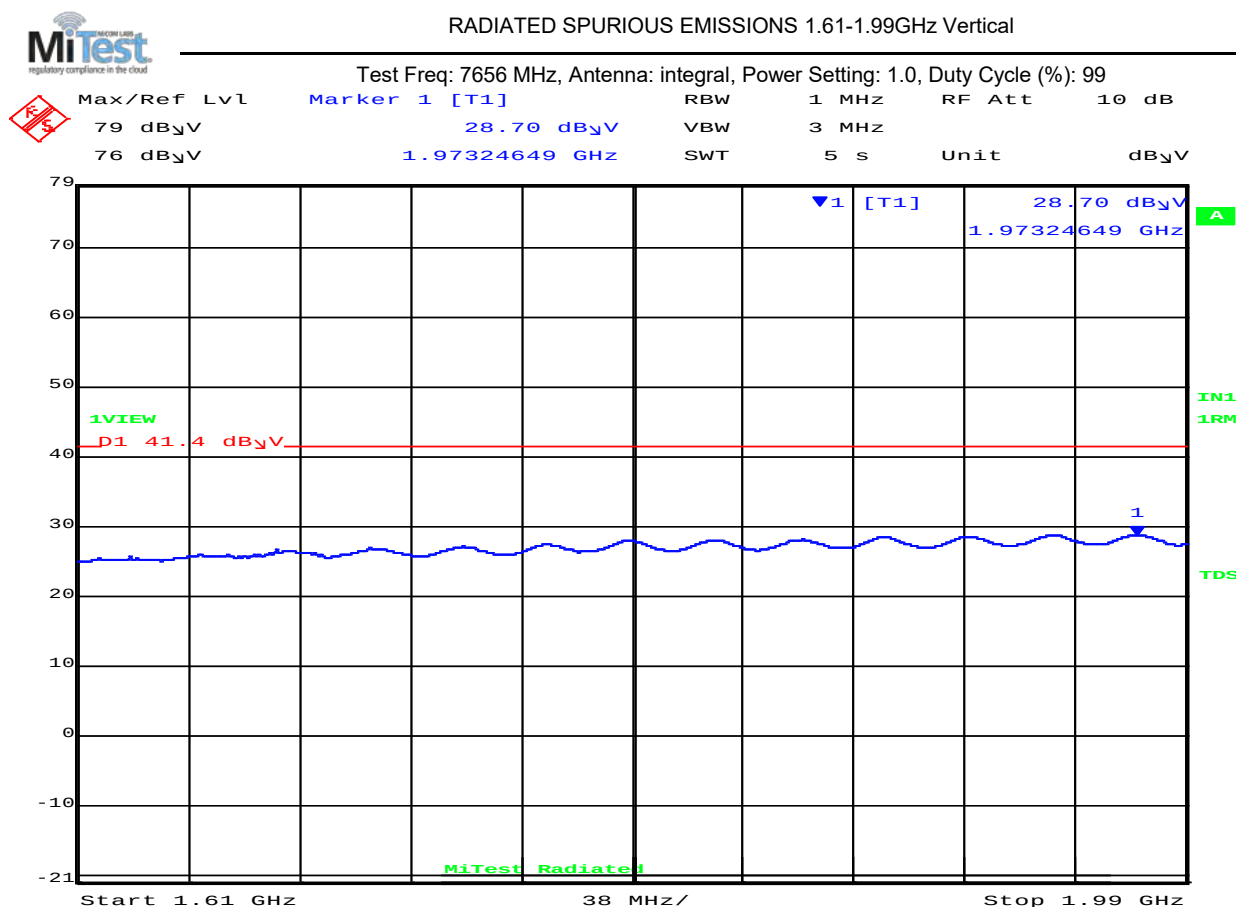


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results

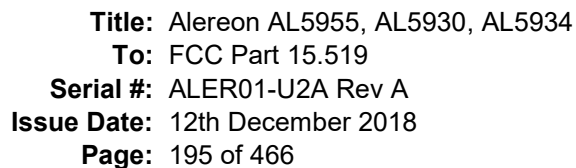


Date: 8.NOV.2018 09:03:24

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

MiTest
NICON LABS
regulatory compliance in the cloud

Test Freq: 7656 MHz, Antenna: integral, Power Setting: 1.0, Duty Cycle (%): 99

The spectrum plot shows a signal with a peak at 1.99 GHz. The peak is labeled '1' and has a value of 43.4 dBμV. The plot also shows a noise floor at approximately 28 dBμV. The frequency range is from 1.99 GHz to 3.1 GHz, with a resolution of 111 MHz. The plot is titled 'MiTest Radiated'.

Date: 8.NOV.2018 09:00:40

1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

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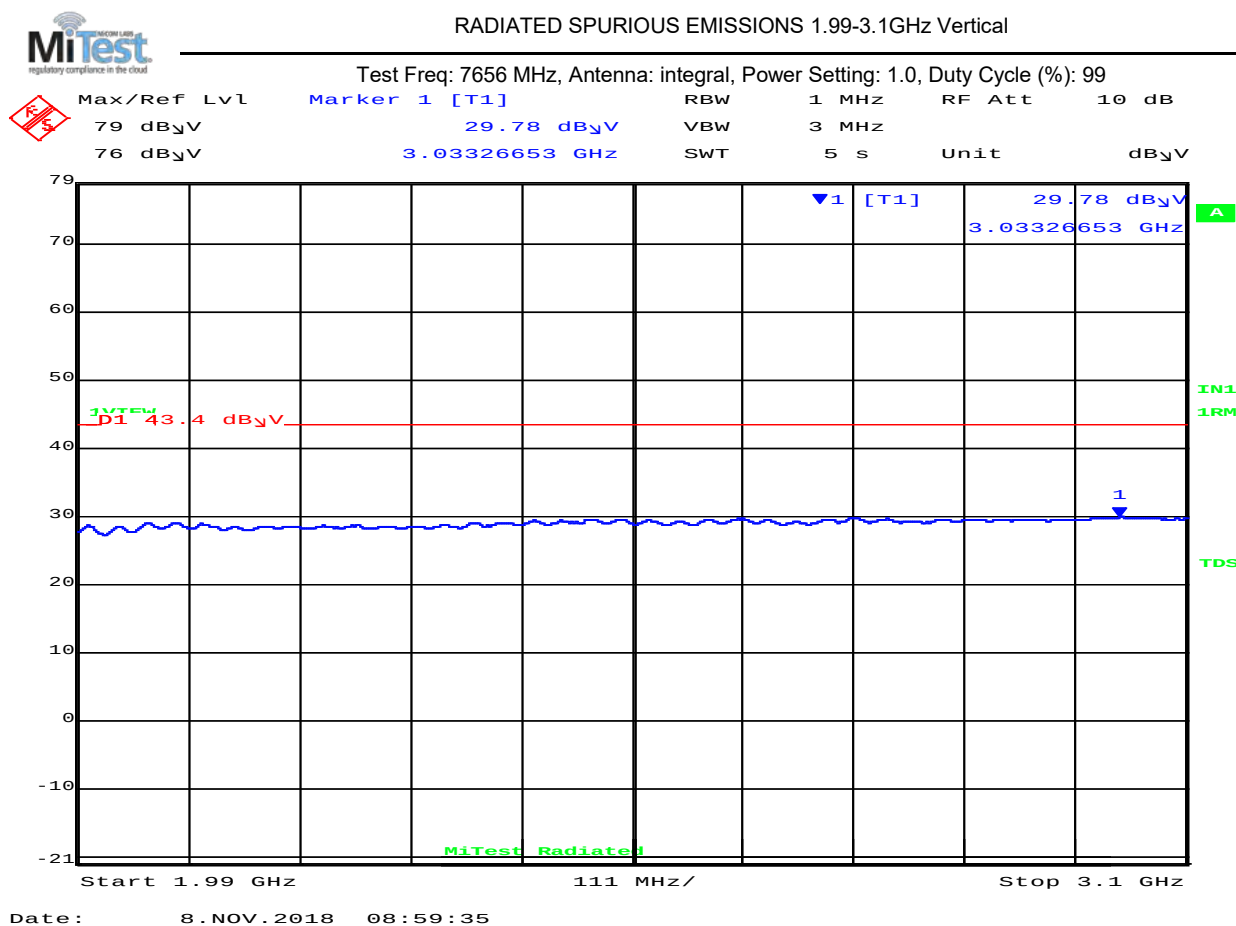


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

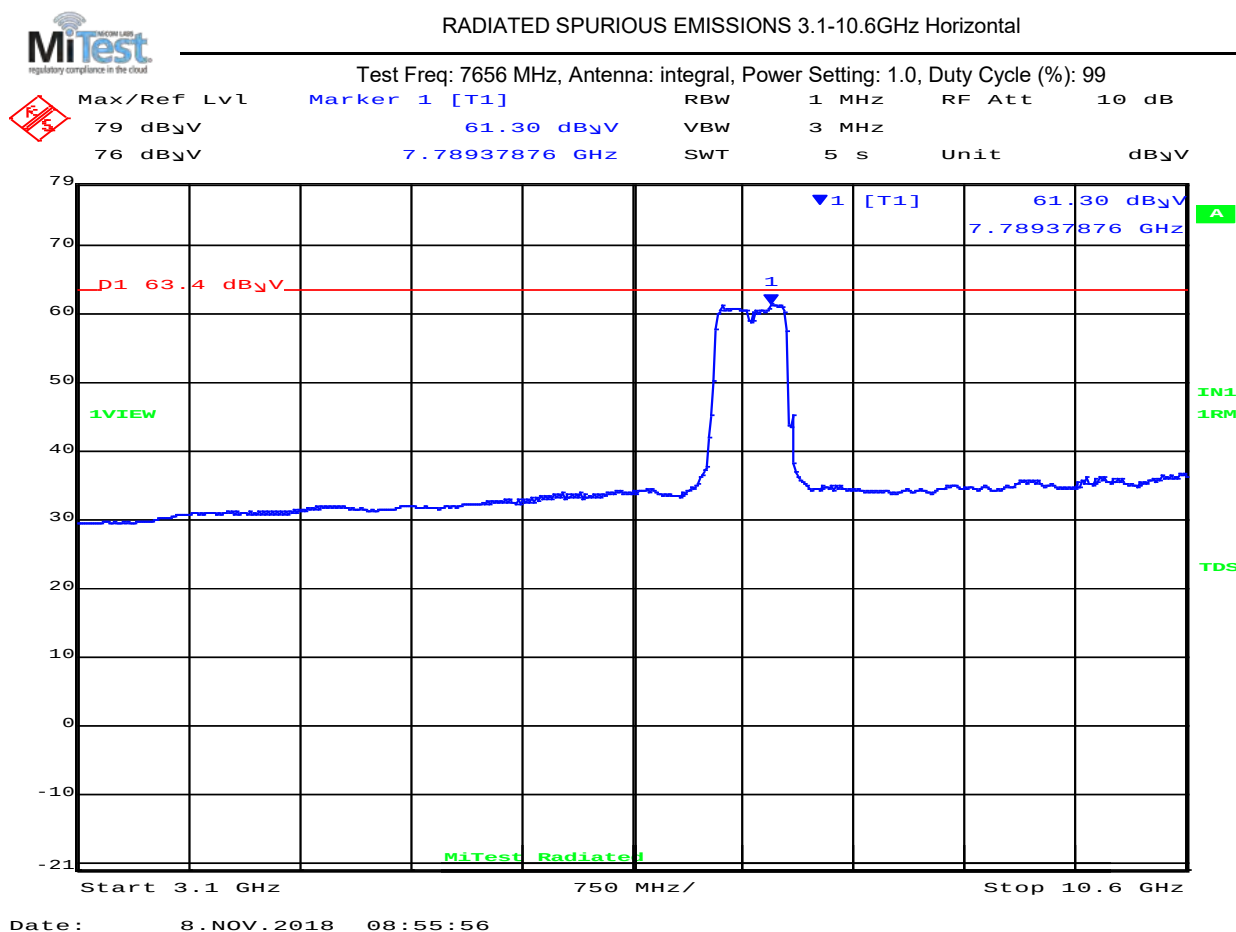


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	7789.4	58.6	Average	Horizontal	150	0	63.4	-4.80	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

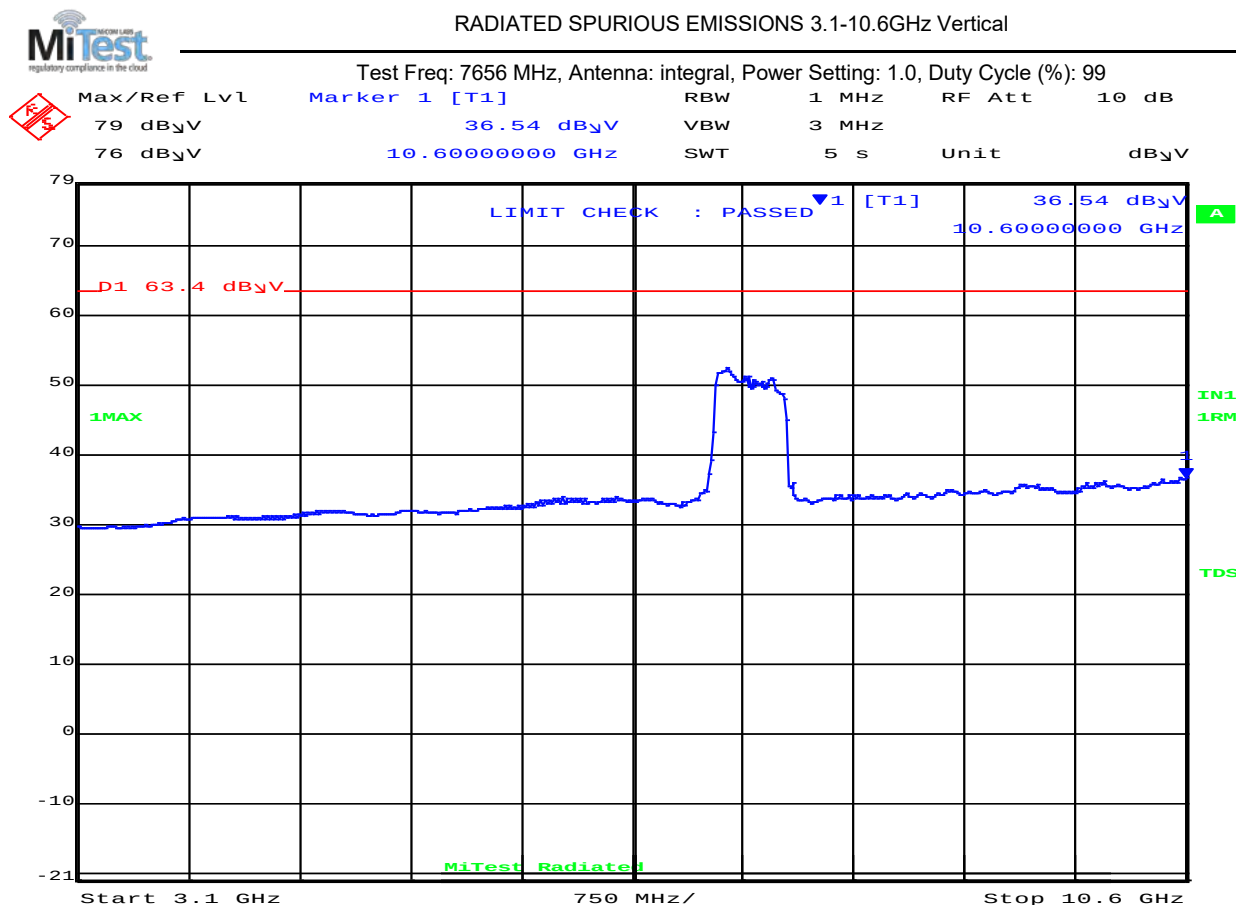


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

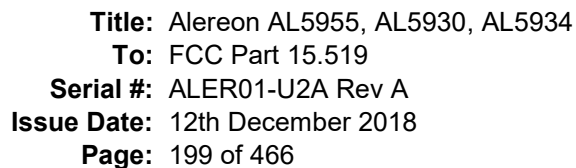
Test Measurement Results



Date: 8.NOV.2018 08:54:05

3100.00 - 10600.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of limit									
Test Notes:									

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

MiTest
regulatory compliance in the cloud

Test Freq: 7656 MHz, Antenna: integral, Power Setting: 1.0, Duty Cycle (%): 99

The image displays a spectrum analyzer plot with a blue trace representing the signal and a red horizontal line indicating a limit. The plot includes several annotations:

- Top Center:** LIMIT CHECK : PASSED
- Top Right:** 42.24 dB μ V, 15.68617234 GHZ
- Left Side:** P1 43.4 dB μ V
- Right Side:** 1
- Bottom Center:** MiTest Radiated
- Bottom X-axis:** Start 10.6 GHz, 540 MHz/, Stop 16 GHz

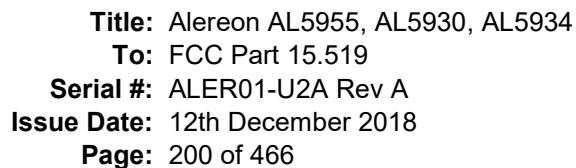
The y-axis represents power in dB μ V, ranging from -21 to 79. The x-axis represents frequency in GHz, ranging from 10.6 to 16.

Date: 8.NOV.2018 08:51:26

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	40.7	Average	Horizontal	150	0	43.4	-2.70	Pass

Test Notes:

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

RADIATED SPURIOUS EMISSIONS 10.6-16GHz Vertical

Test Freq: 7656 MHz, Antenna: integral, Power Setting: 1.0, Duty Cycle (%): 99

Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
79 dB μ V	42.24 dB μ V	VBW	3 MHz		
76 dB μ V	15.68617234 GHz	SWT	5 s	Unit	dB μ V

Start 10.6 GHz 540 MHz/ Stop 16 GHz

Date: 8.NOV.2018 08:57:55

Test Notes:

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com

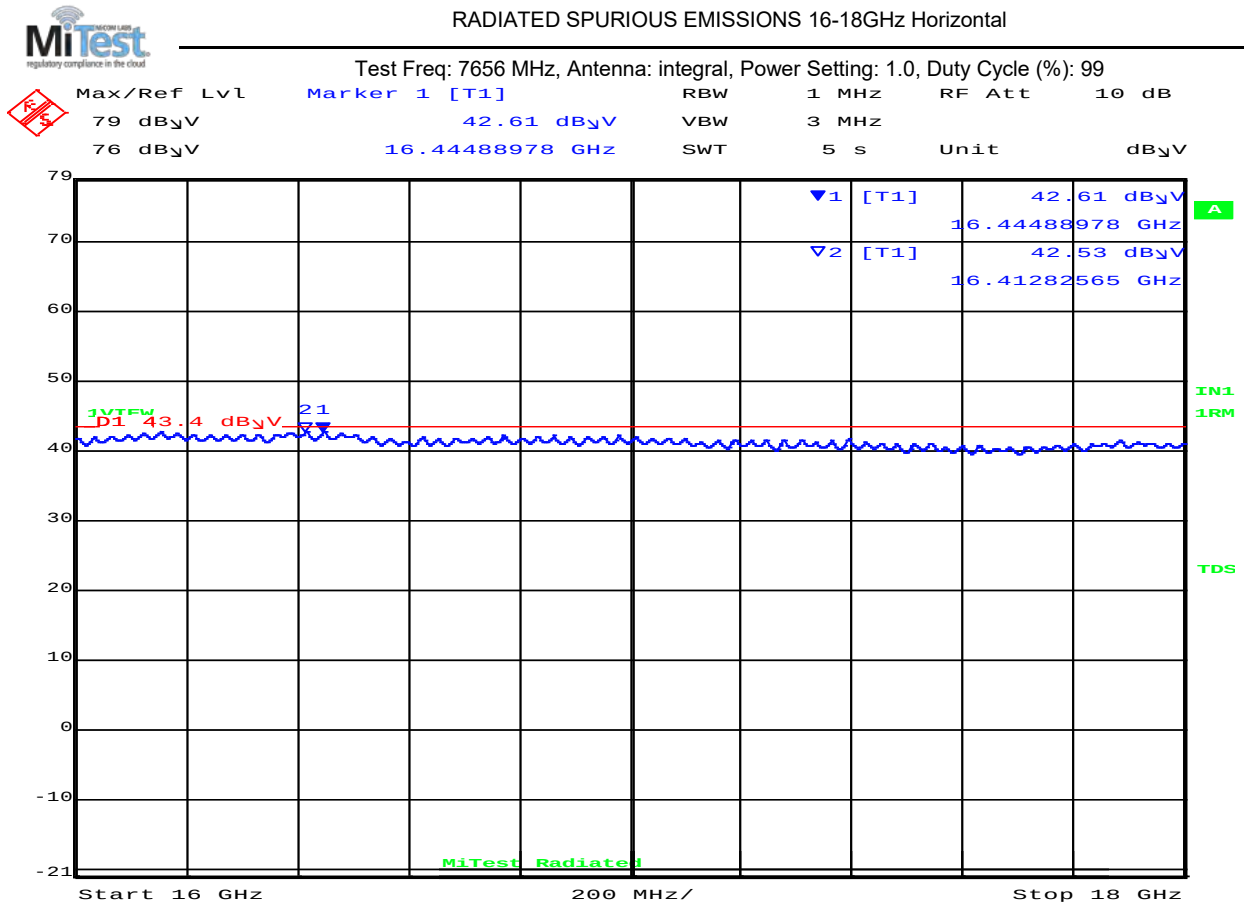


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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:48:38

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.9	41.5	Average	Horizontal	150	0	43.4	-1.90	Pass
2	16412.8	41.4	Average	Horizontal	150	0	43.4	-2.00	Pass

Test Notes:

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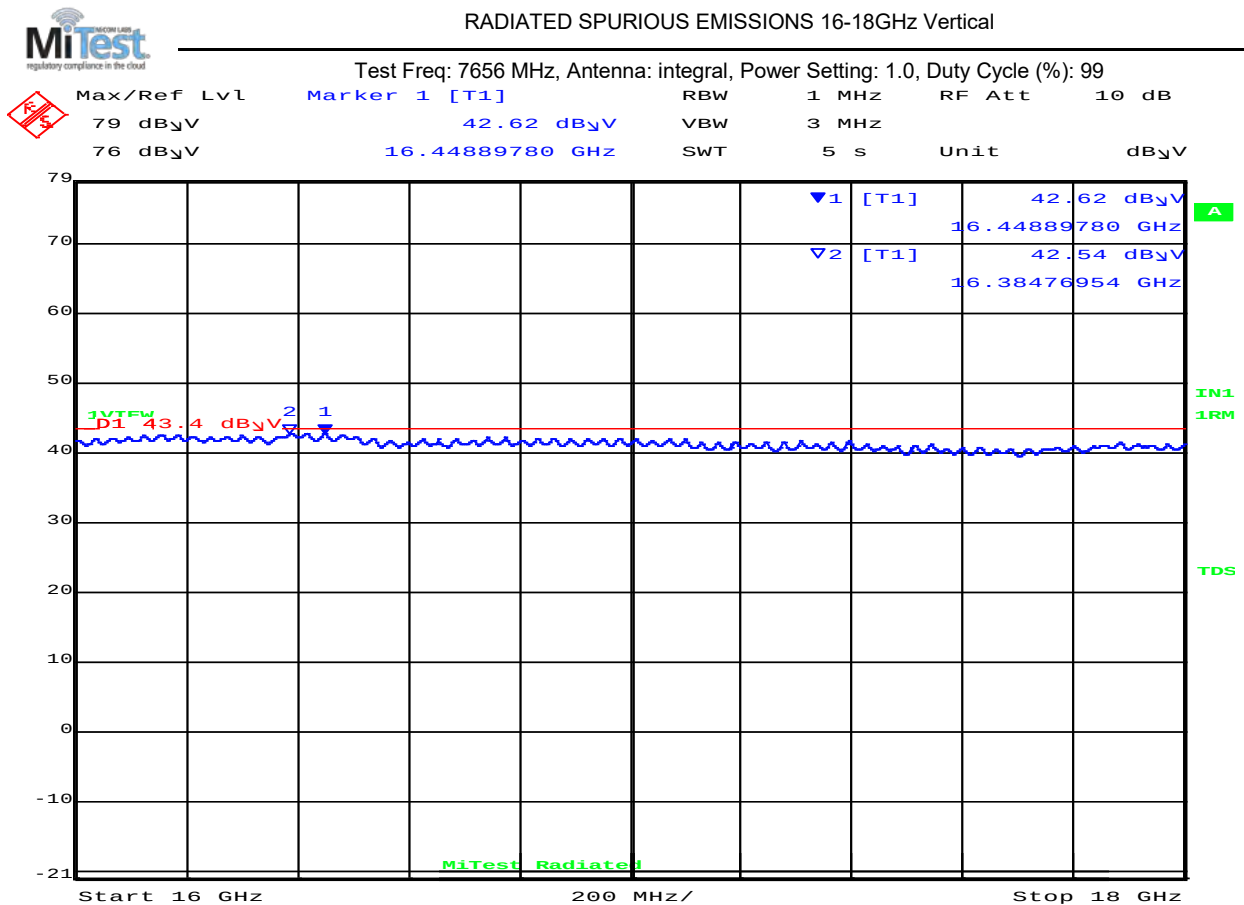


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	0.1	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	7656.00	Data Rate:	
Power Setting:	1.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 08:45:18

16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16448.9	42.6	Average	Vertical	150	0	43.4	-0.80	Pass
2	16384.7	41.5	Average	Vertical	150	0	43.4	-1.90	Pass

Test Notes:

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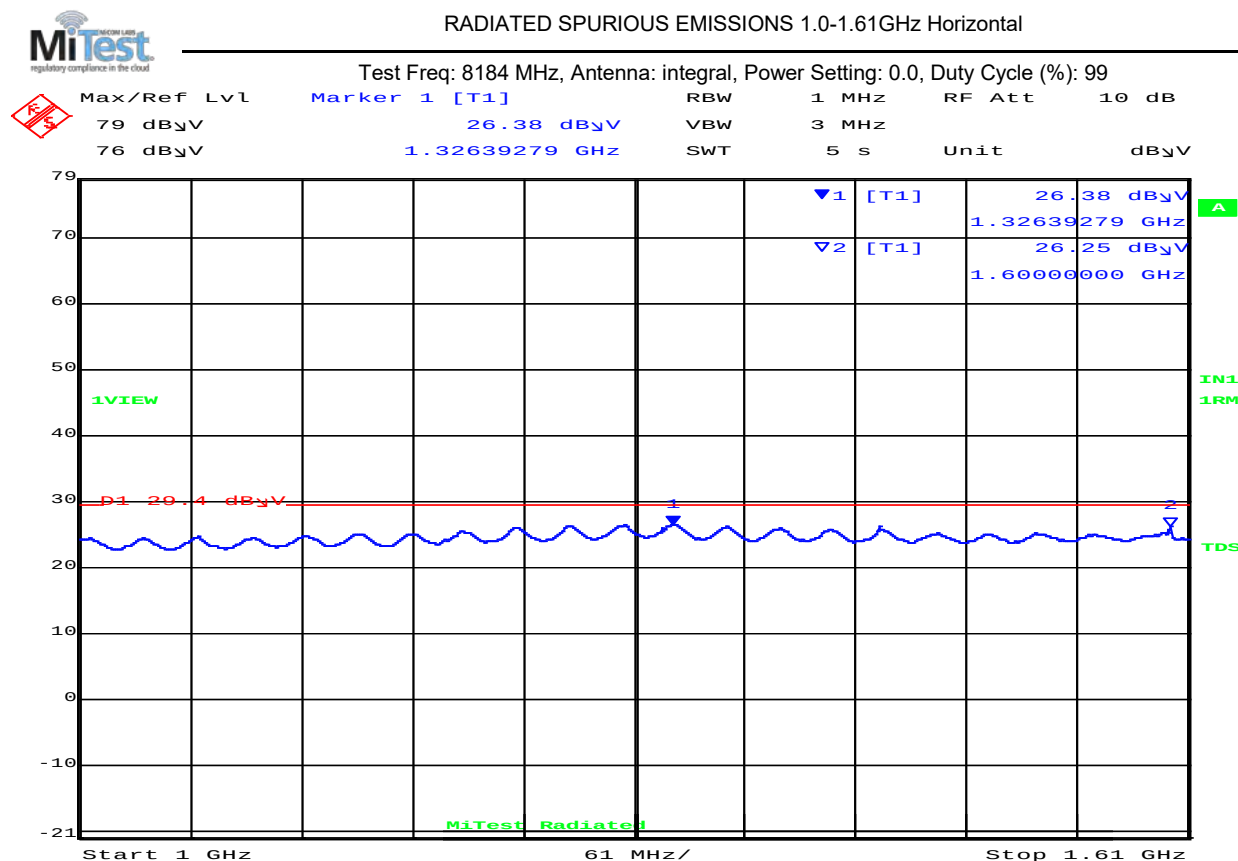
Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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8184 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 17:45:07

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1326.4	25.0	Average	Horizontal	150	0	29.4	-4.40	Pass
2	1600.0	27.1	Average	Horizontal	150	0	29.4	-2.30	Pass

Test Notes:

Laptop Removed

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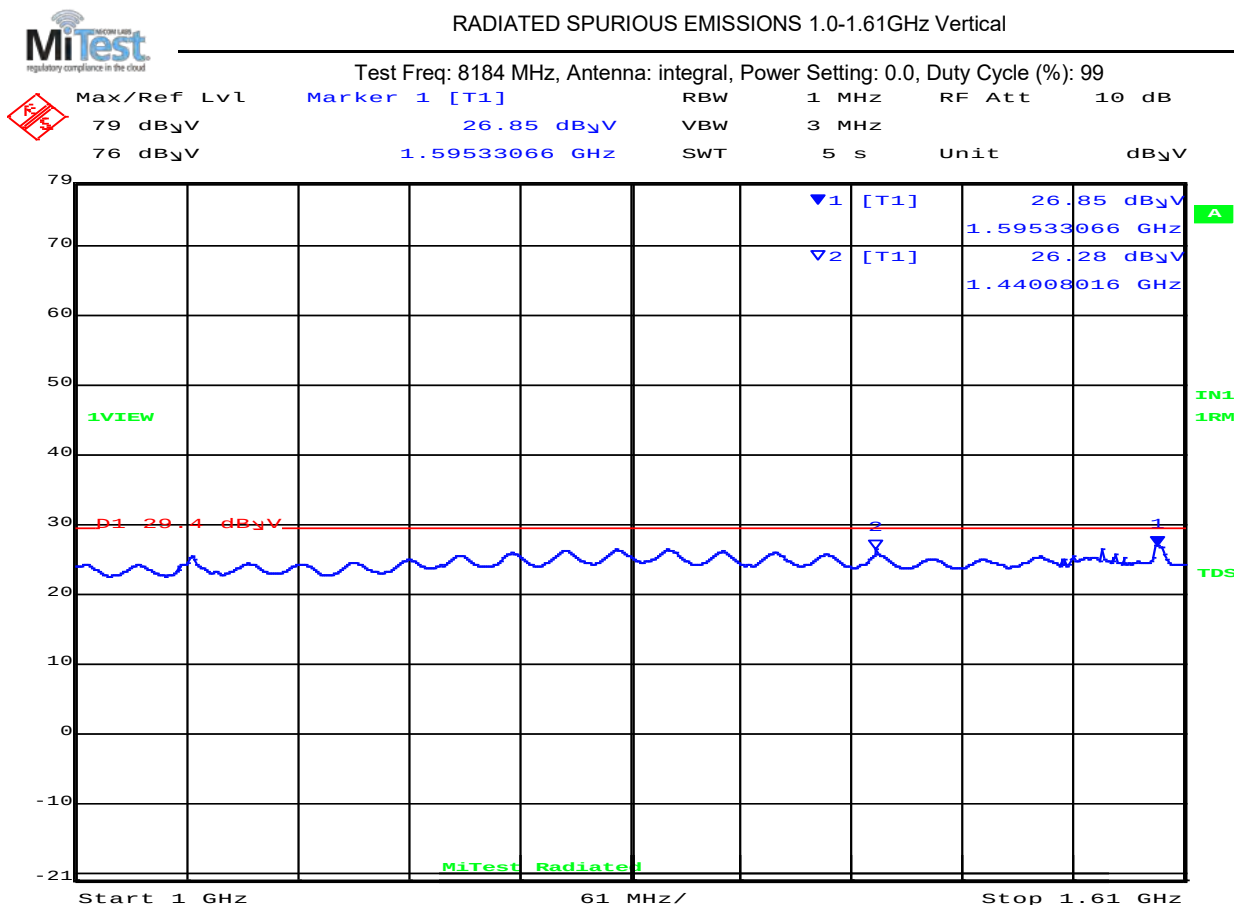


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.19
Serial #: ALER01-U2A Rev A
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 7.NOV.2018 17:47:54

1000.00– 1610.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1595.3	24.9	Average	Vertical	150	0	29.4	-4.50	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:

Laptop Removed

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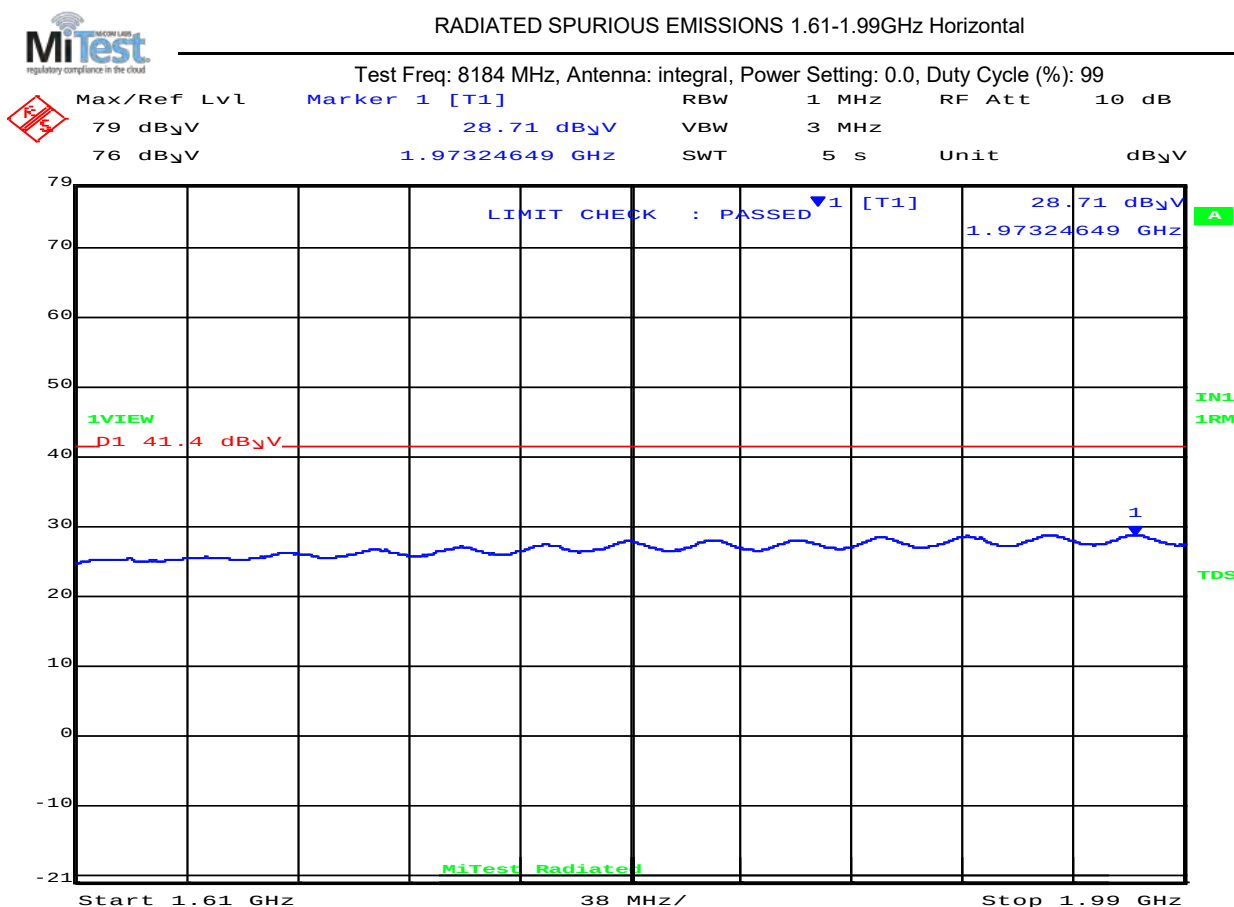


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:10:44

1610.00 – 1990.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

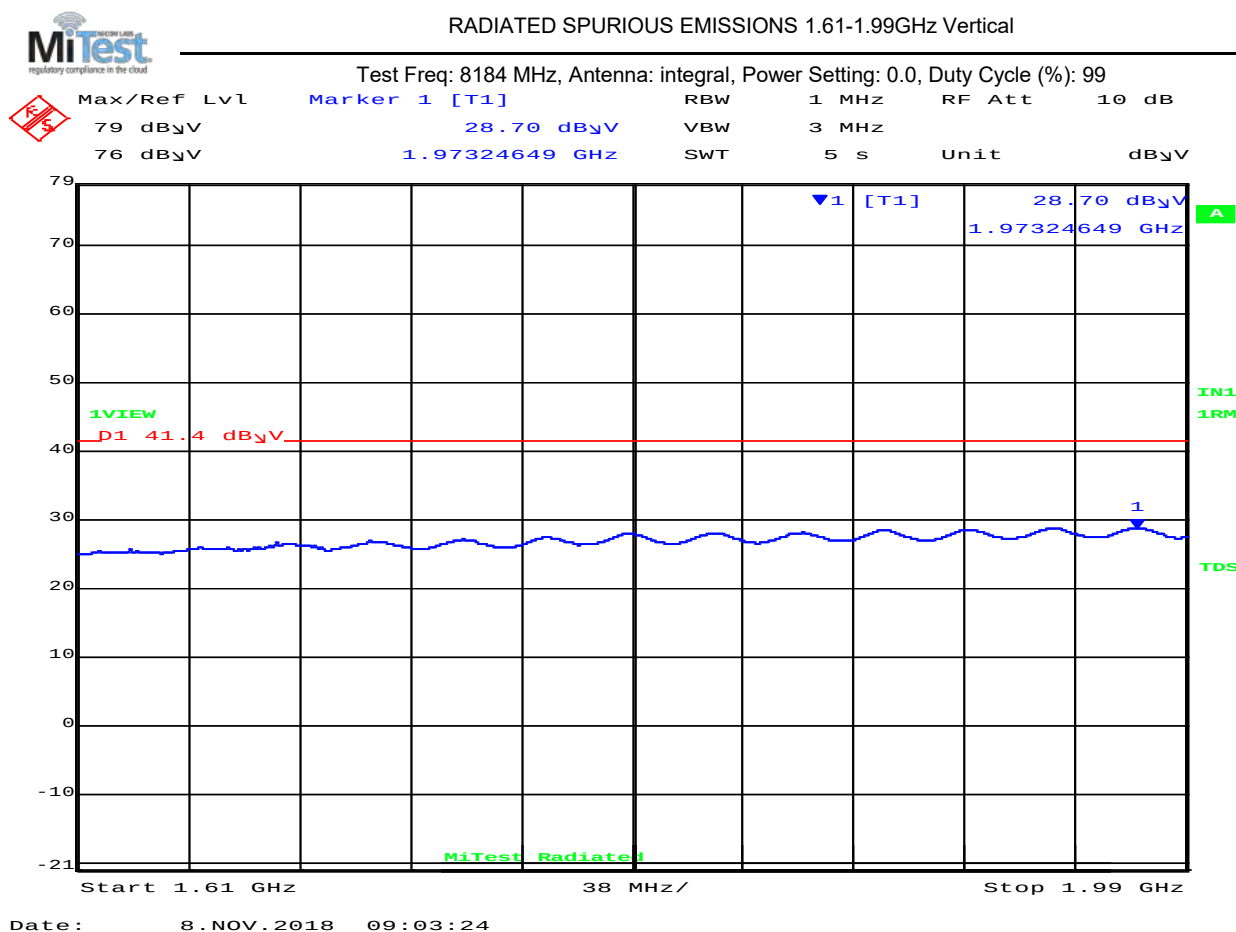


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

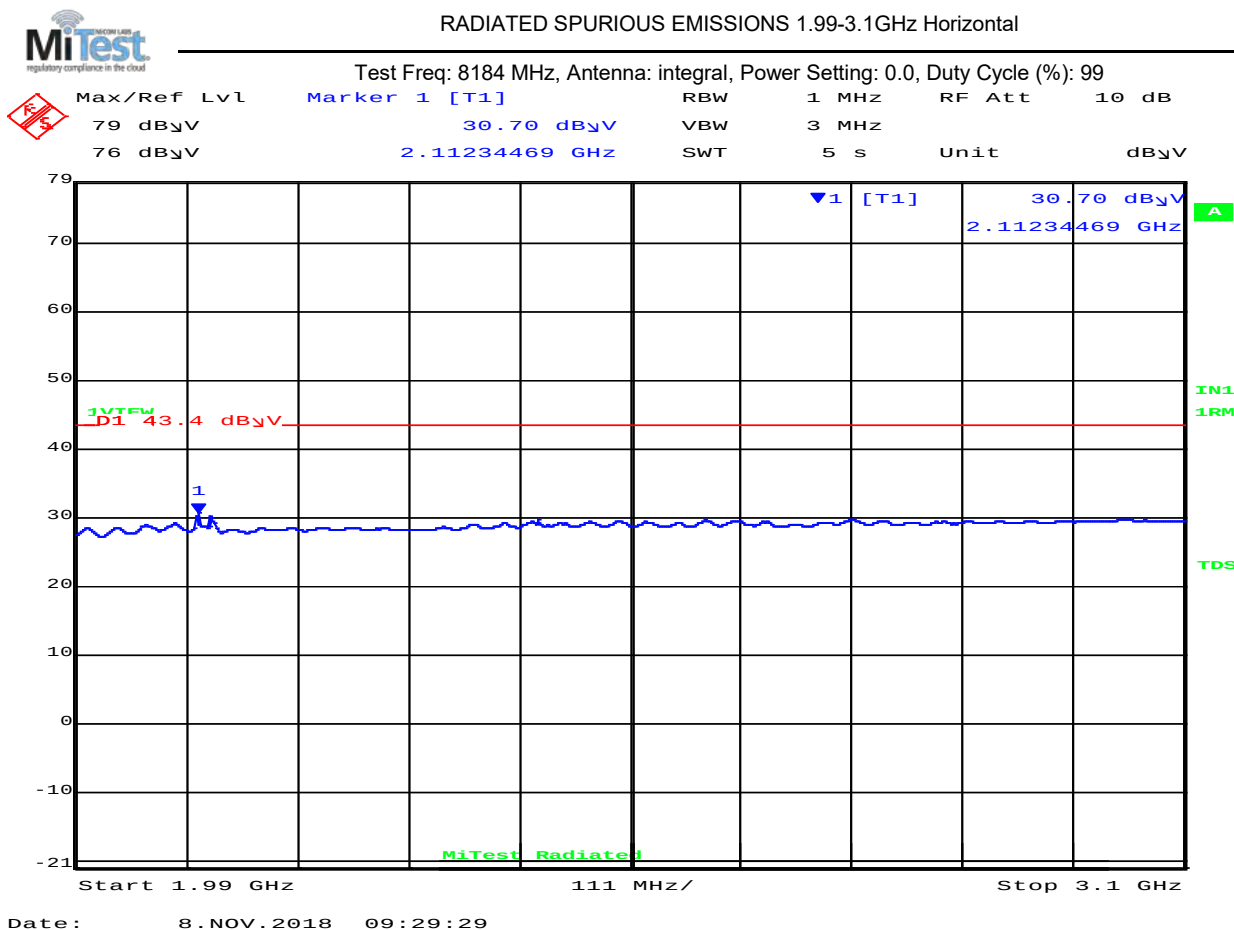


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

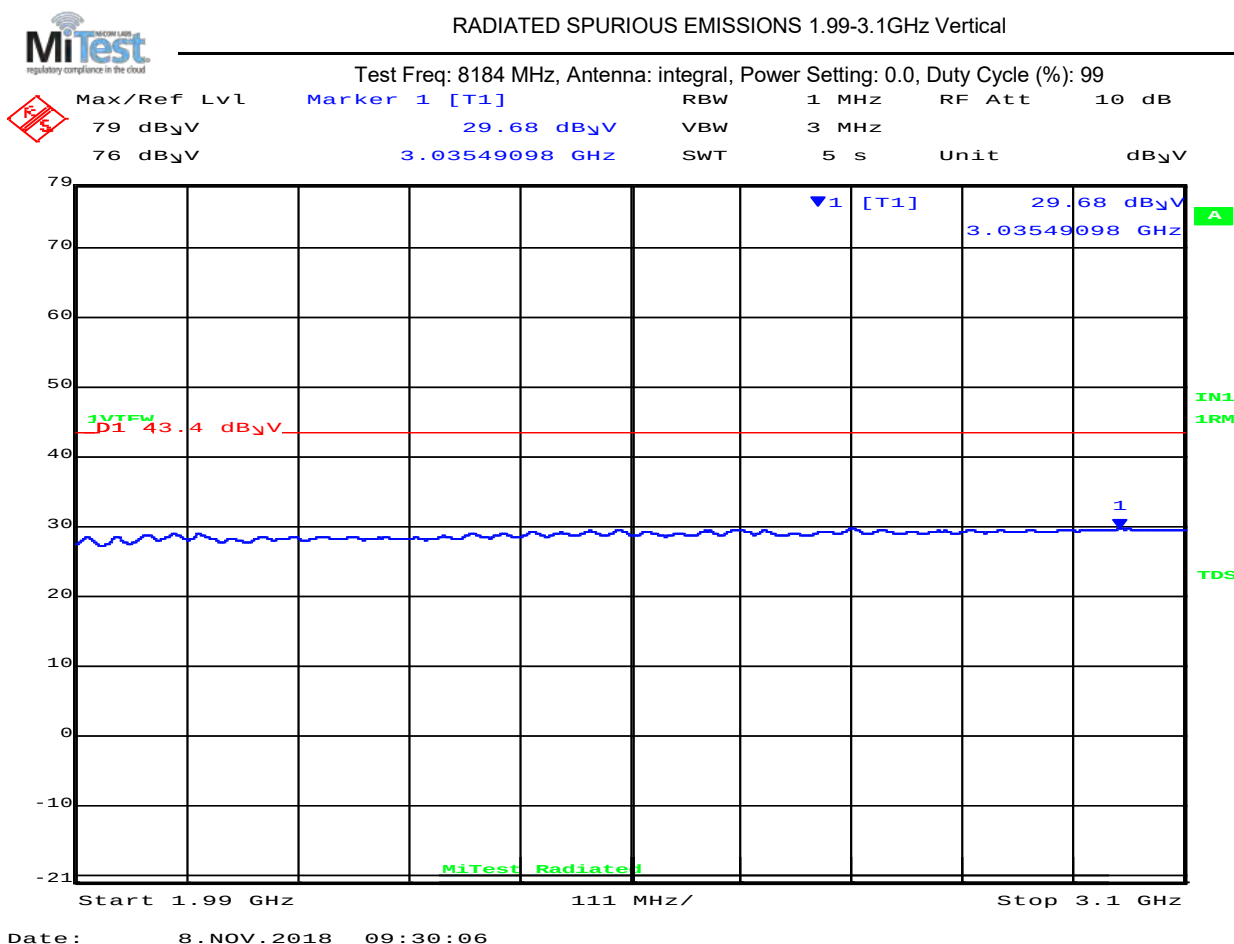


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

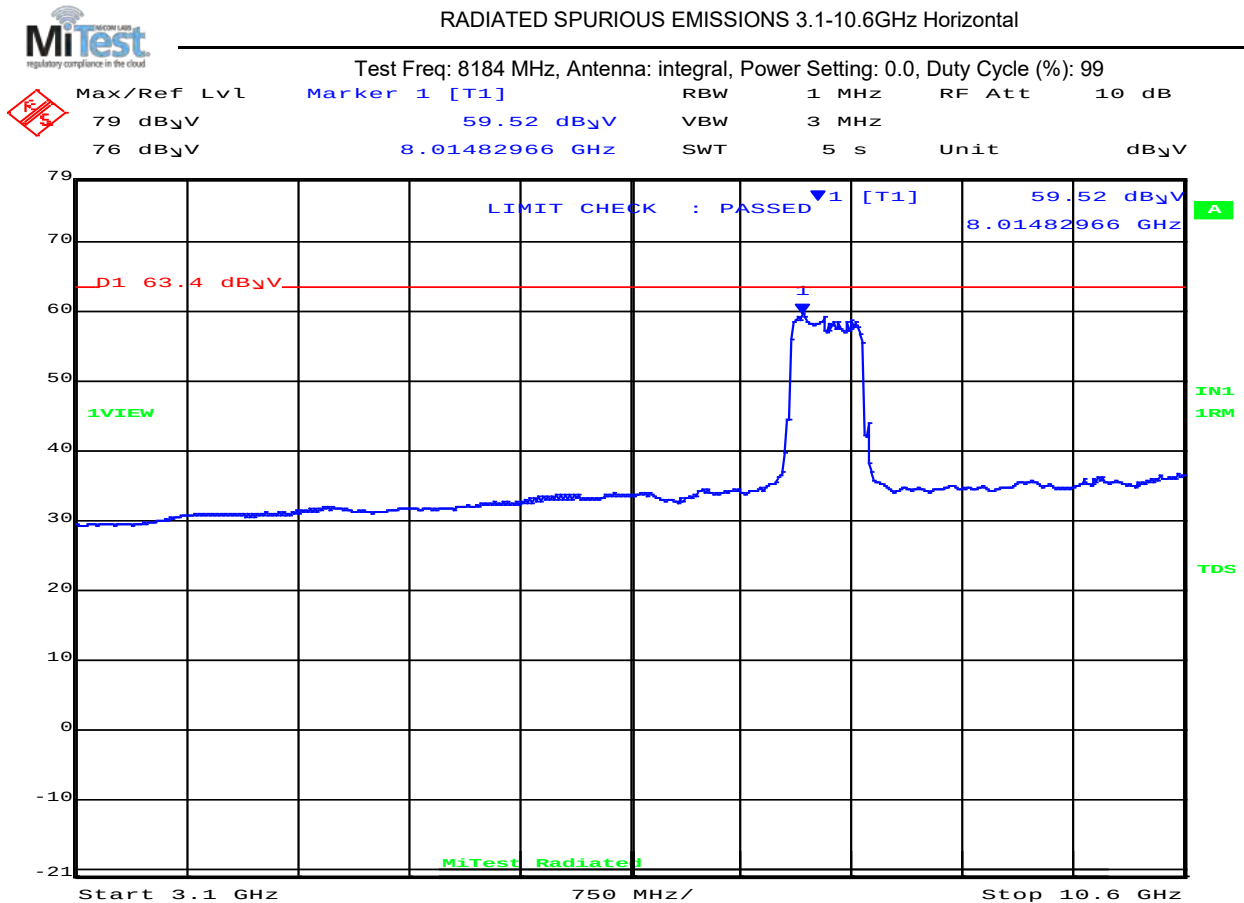


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:26:52

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	8014.8	59.2	Average	Horizontal	150	0	63.4	-4.20	Pass

Test Notes:

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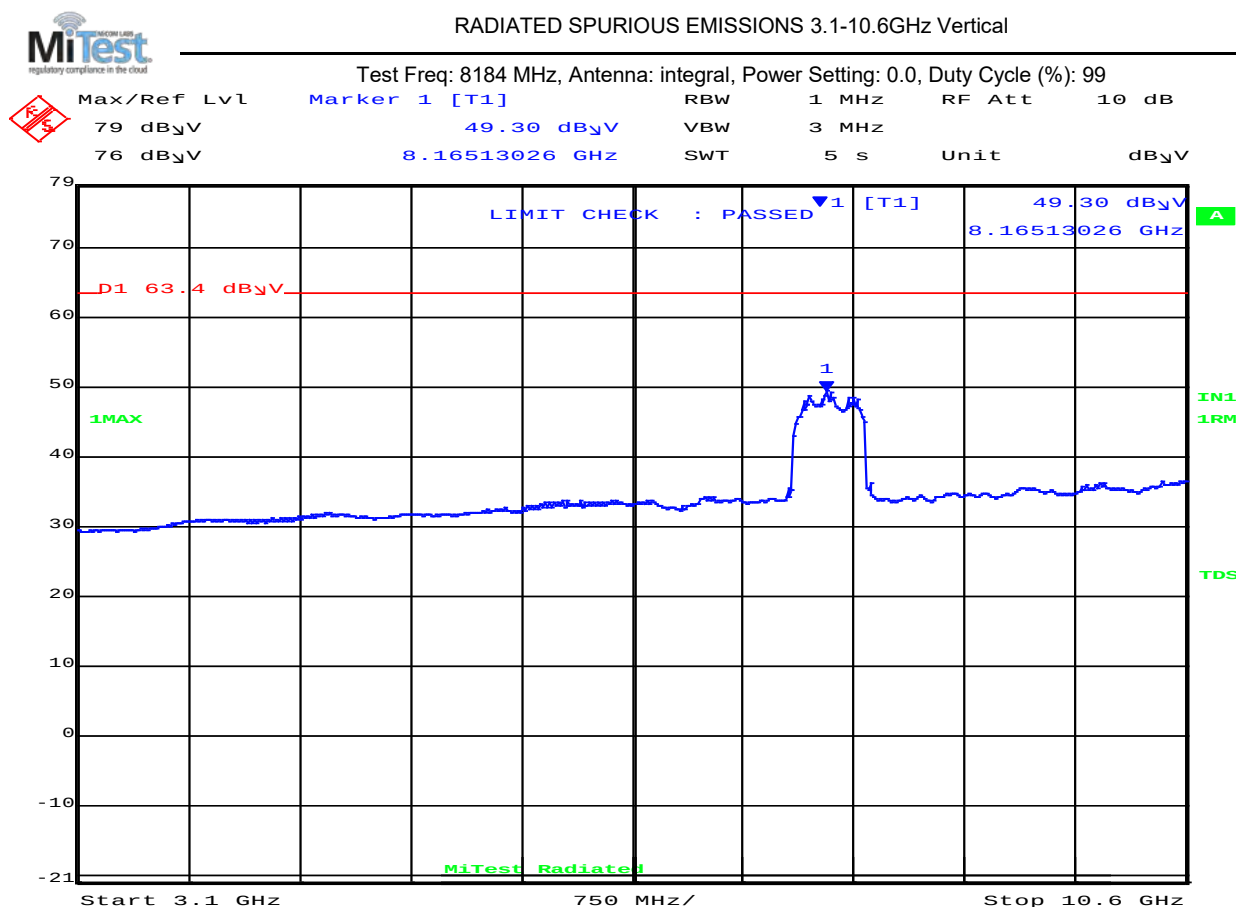


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:21:42

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes:									

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Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

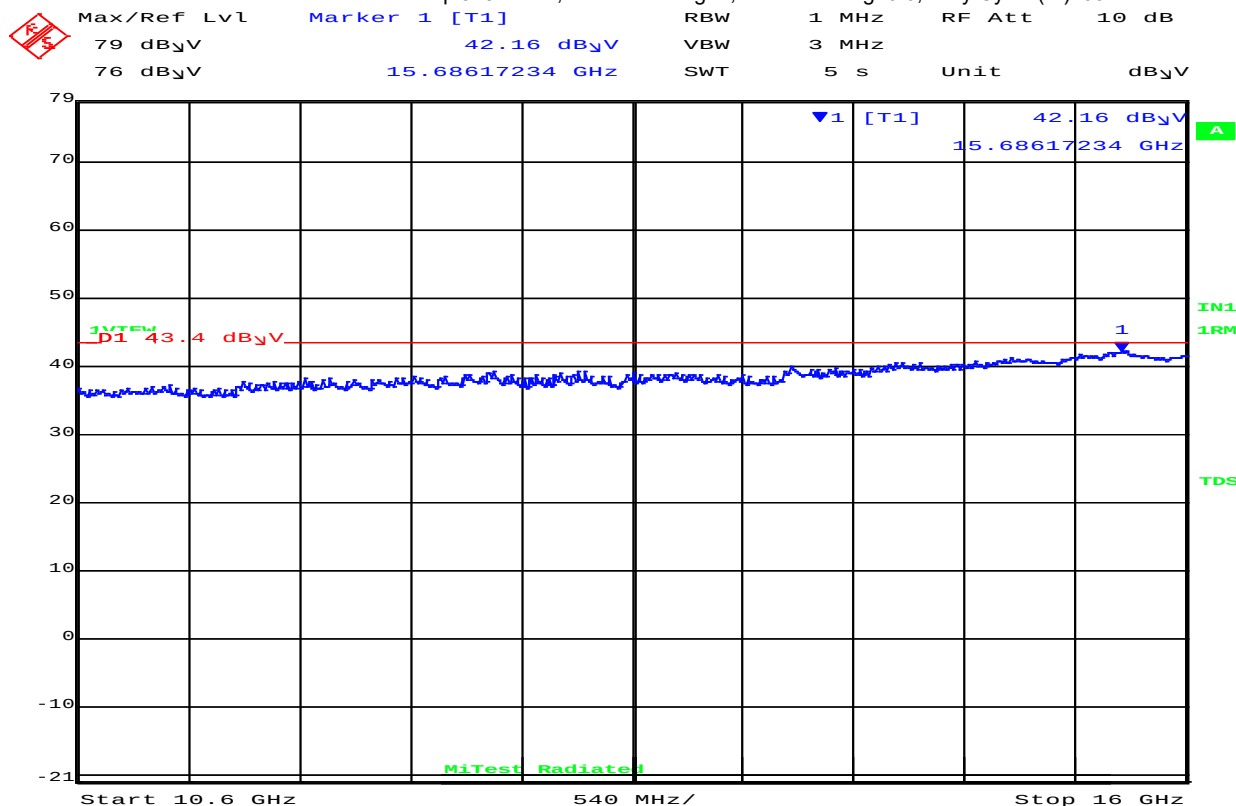
Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



RADIATED SPURIOUS EMISSIONS 10.6-16GHz Horizontal

Test Freq: 8184 MHz, Antenna: integral, Power Setting: 0.0, Duty Cycle (%): 99



Date: 8.NOV.2018 09:32:36

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	40.7	Average	Horizontal	150	0	43.4	-2.70	Pass
Test Notes:									

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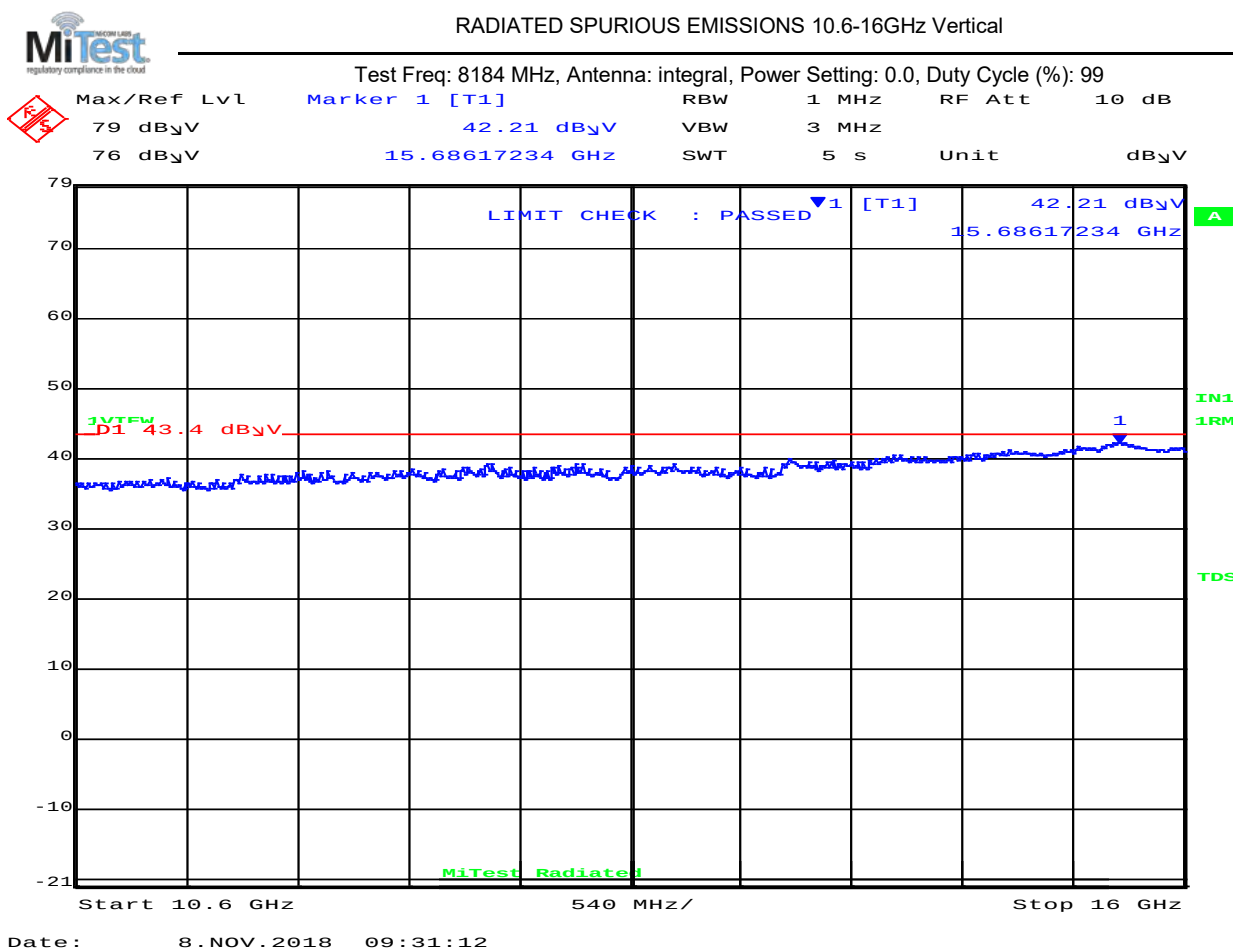


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results

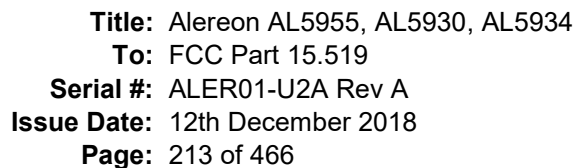


10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.8	Average	Vertical	150	0	43.4	-2.60	Pass

Test Notes:

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Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

MiTest regulatory compliance in the cloud

RADIATED SPURIOUS EMISSIONS 16-18GHz Horizontal

Test Freq: 8184 MHz, Antenna: integral, Power Setting: 0.0, Duty Cycle (%): 99

Max/Ref Lvl 79 dBμV 76 dBμV Marker 1 [T1] 42.53 dBμV 16.38476954 GHz RBW 1 MHz VBW 3 MHz RF Att 10 dB Unit dBμV

▼1 [T1] 42.53 dBμV 16.38476954 GHz
▼2 [T1] 42.45 dBμV 16.41683367 GHz

1VTEW D1 43.4 dBμV 12

MiTest Radiated

Start 16 GHz 200 MHz/ Stop 18 GHz

Date: 8.NOV.2018 09:34:28

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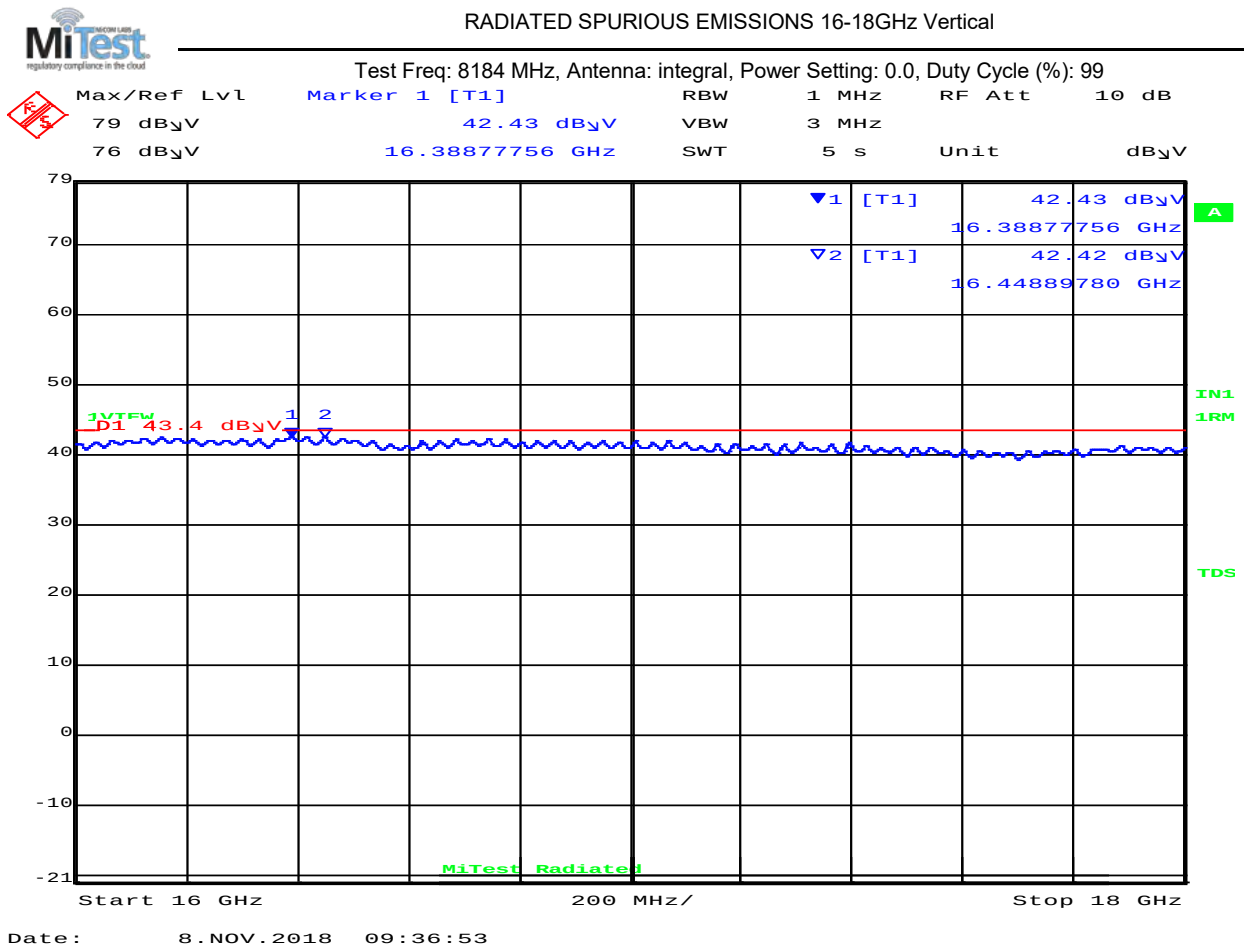


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8184.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16388.8	41.3	Average	Vertical	150	0	43.4	-2.10	Pass
2	16488.9	41.6	Average	Vertical	150	0	43.4	-1.80	Pass

Test Notes:

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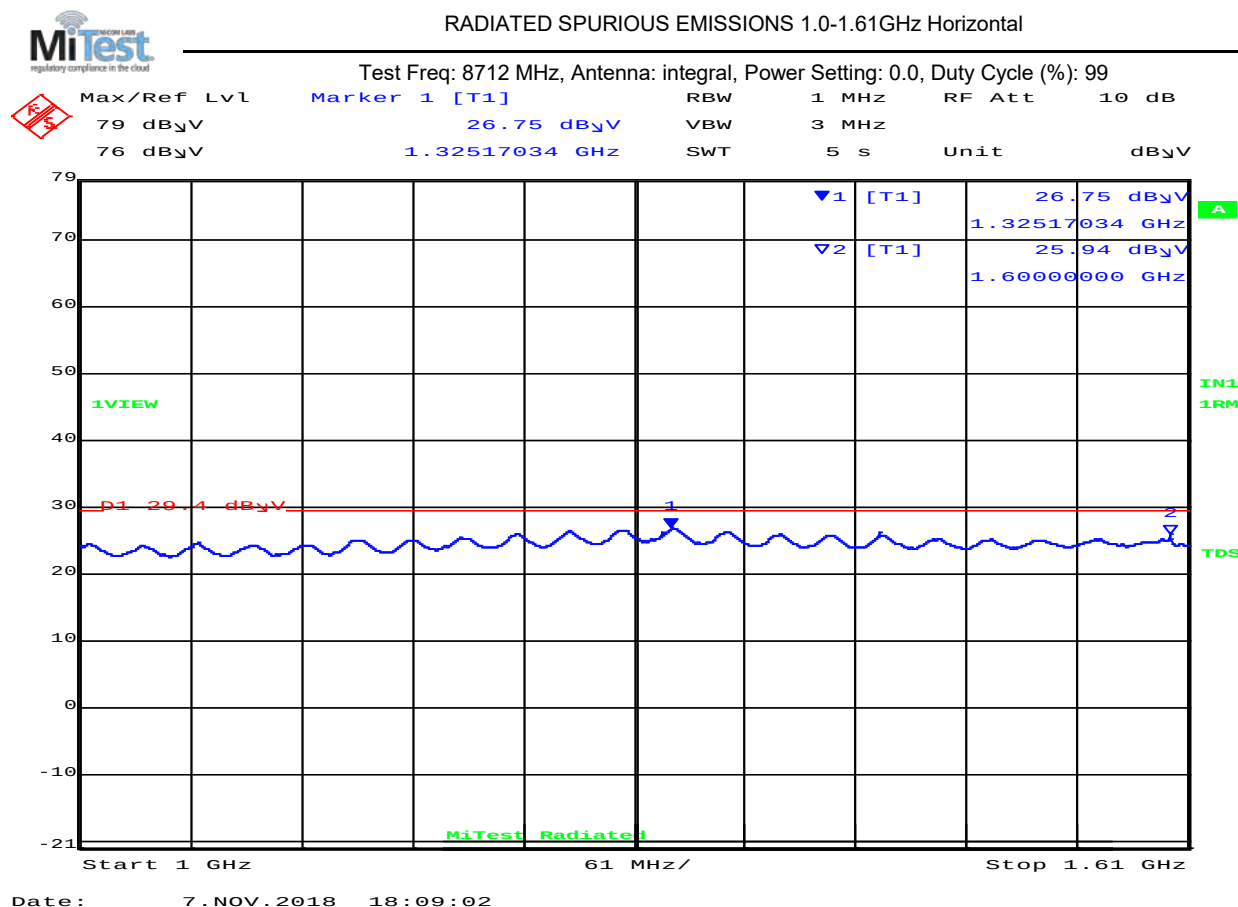
Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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8712 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	1325.2	25.0	Average	Horizontal	150	0	29.4	-4.40	Pass
2	1600.0	25.9	Average	Horizontal	150	0	29.4	-3.50	Pass

Test Notes:
Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

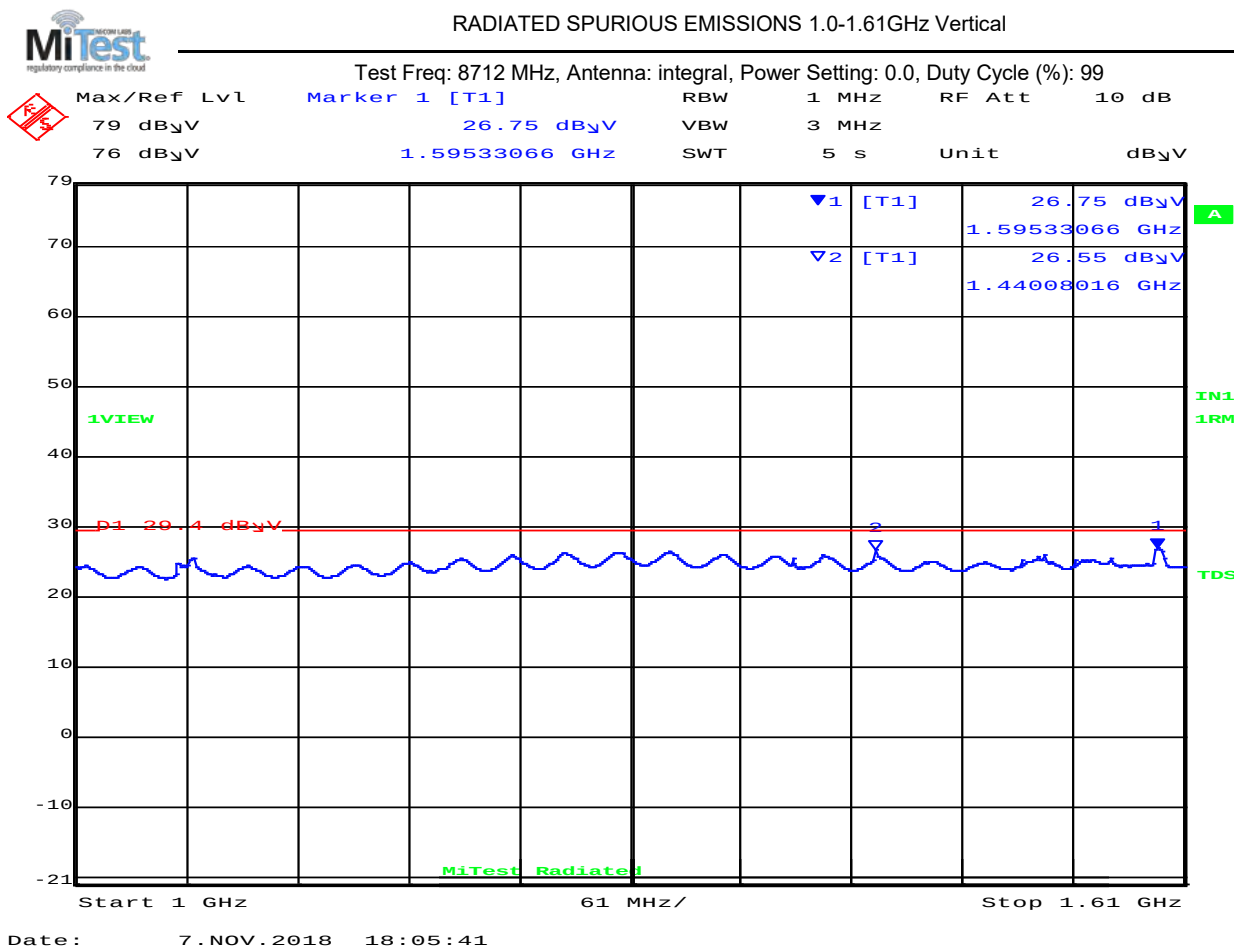


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1595.3	25.9	Average	Vertical	150	0	29.4	-3.50	Pass
2	1440.1	25.8	Average	Vertical	150	0	29.4	-3.60	Pass

Test Notes:

Laptop Removed

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

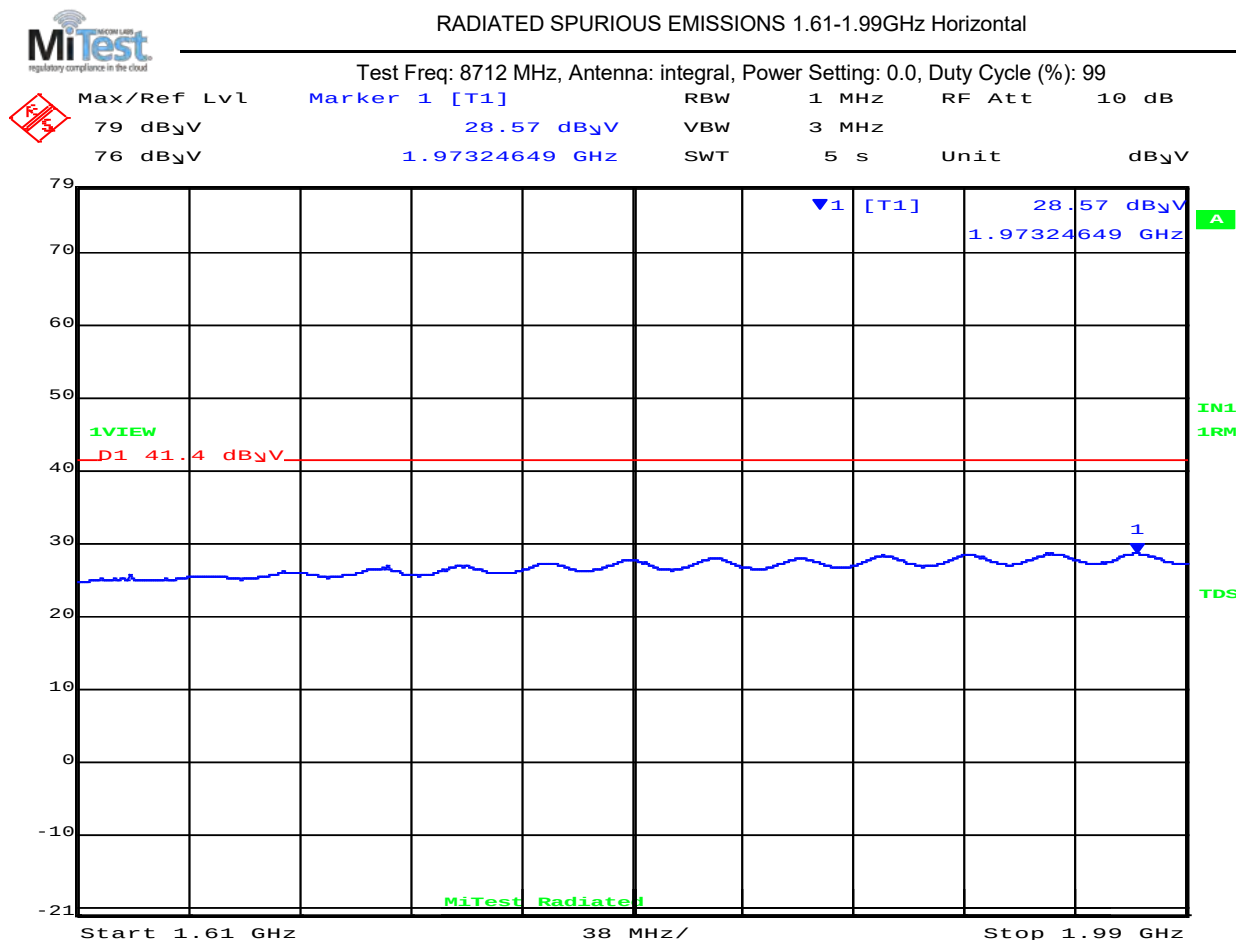


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 10:01:01

1610.00 – 1990.00 MHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

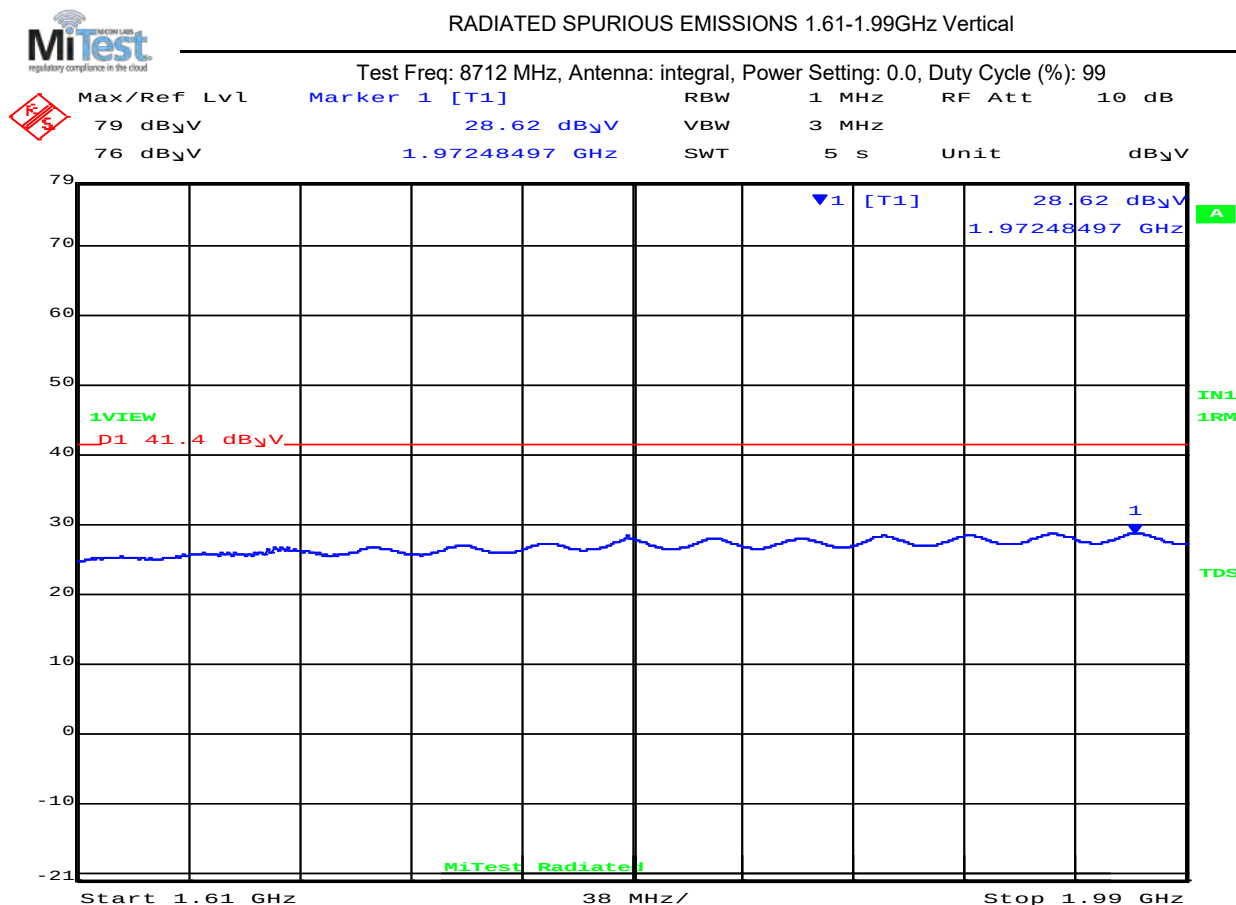


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:59:57

1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

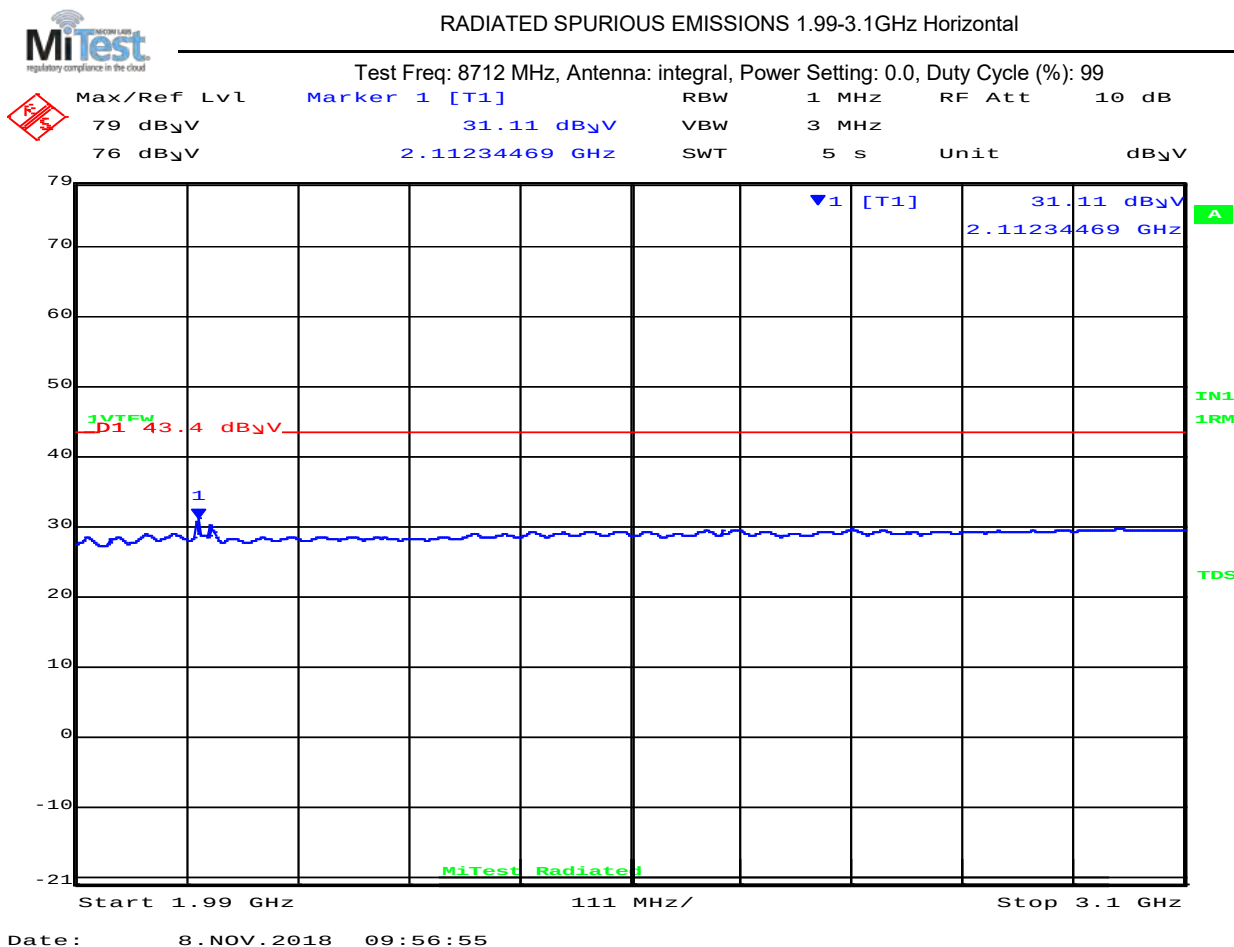


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

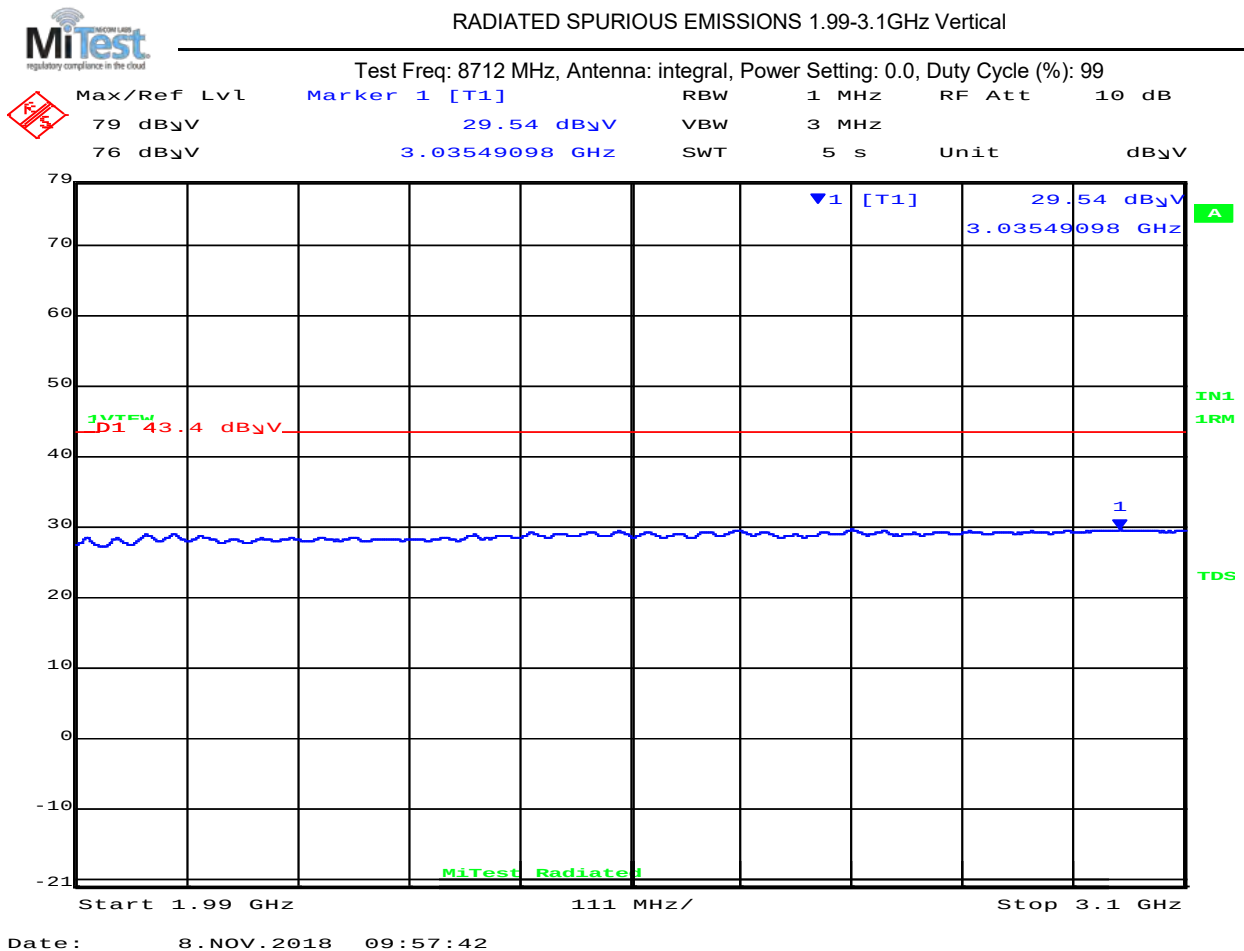


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes: Laptop Removed									

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

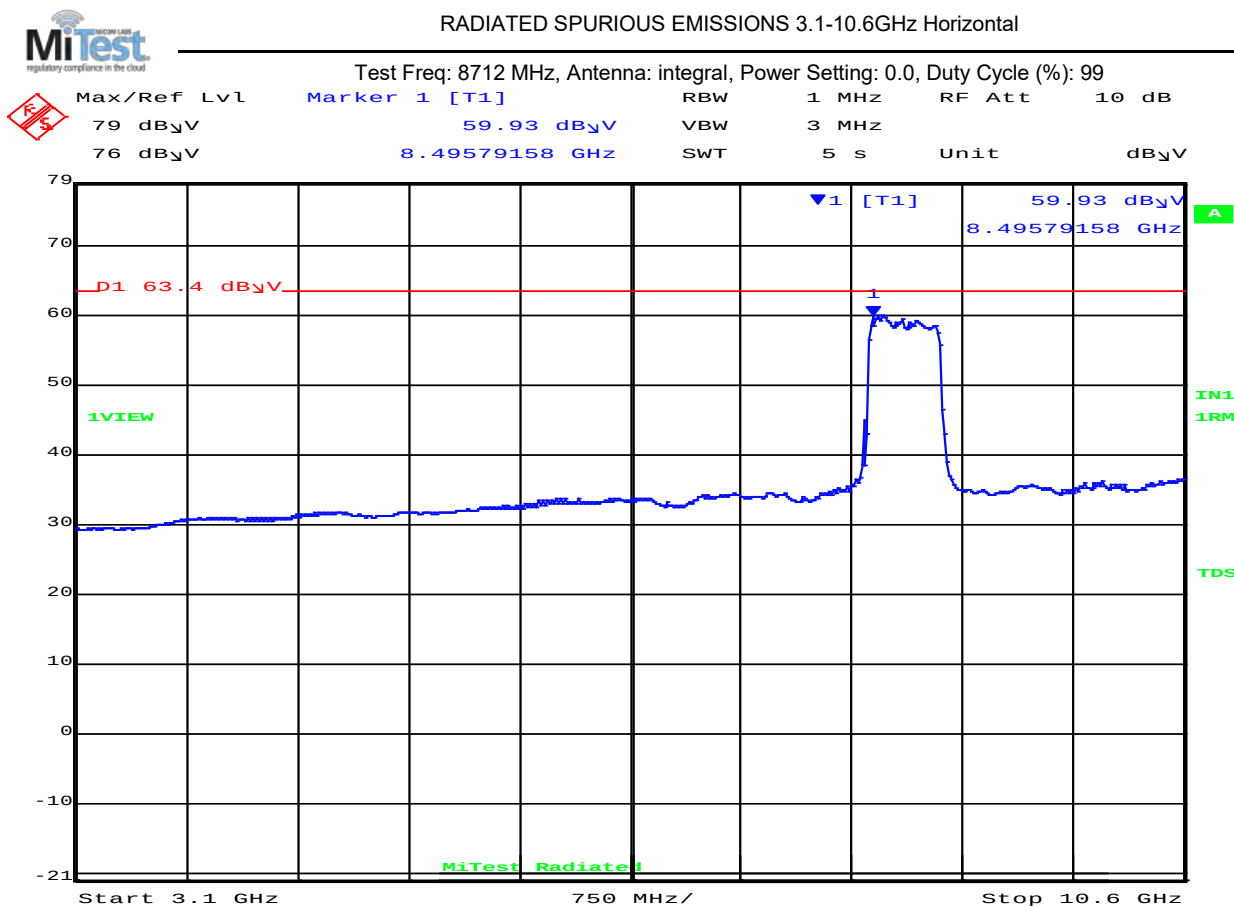


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:53:31

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	8495.7	58.4	Average	Horizontal	150	0	63.4	-5.00	Pass

Test Notes:

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

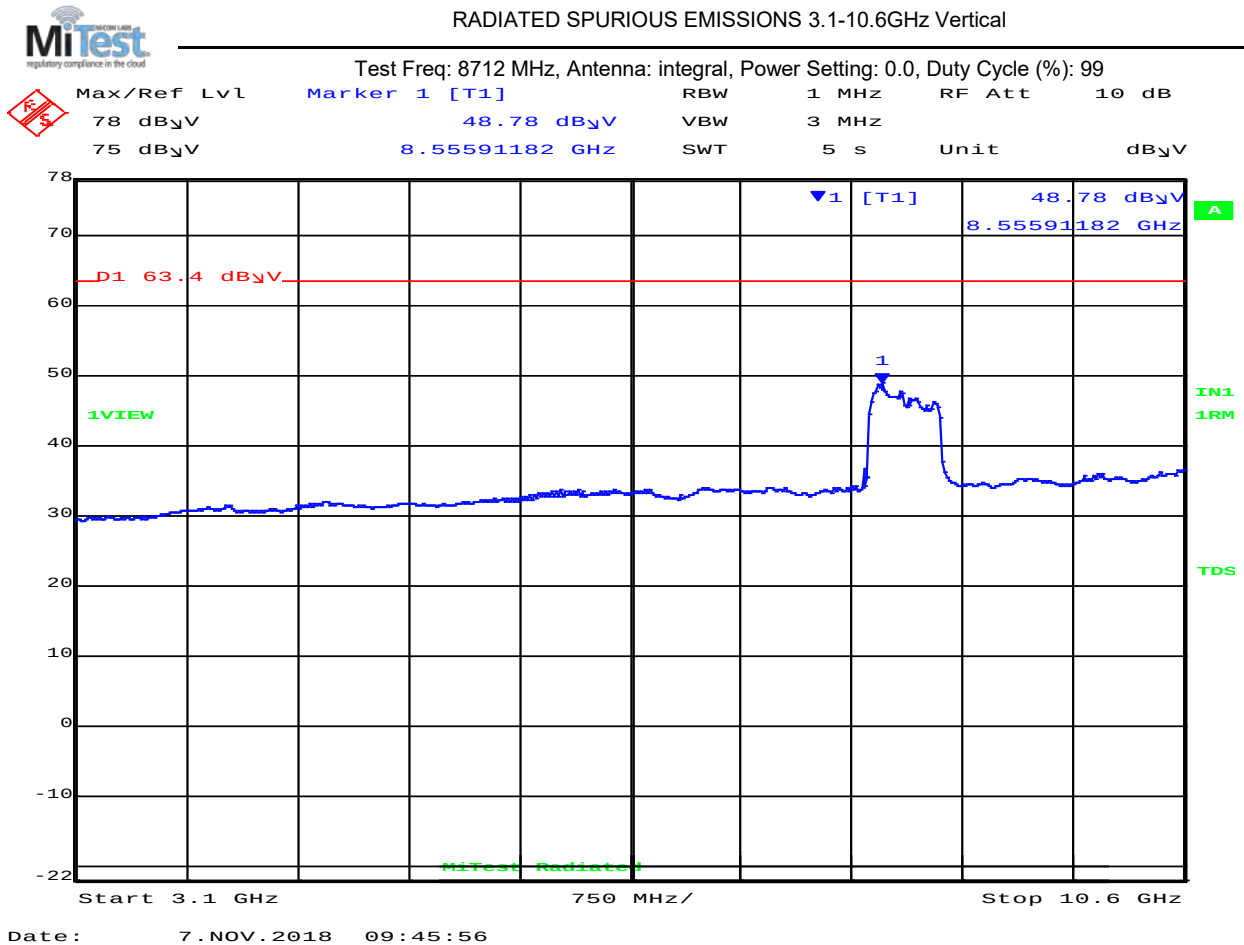


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals found within 6 dB of Limit									
Test Notes:									

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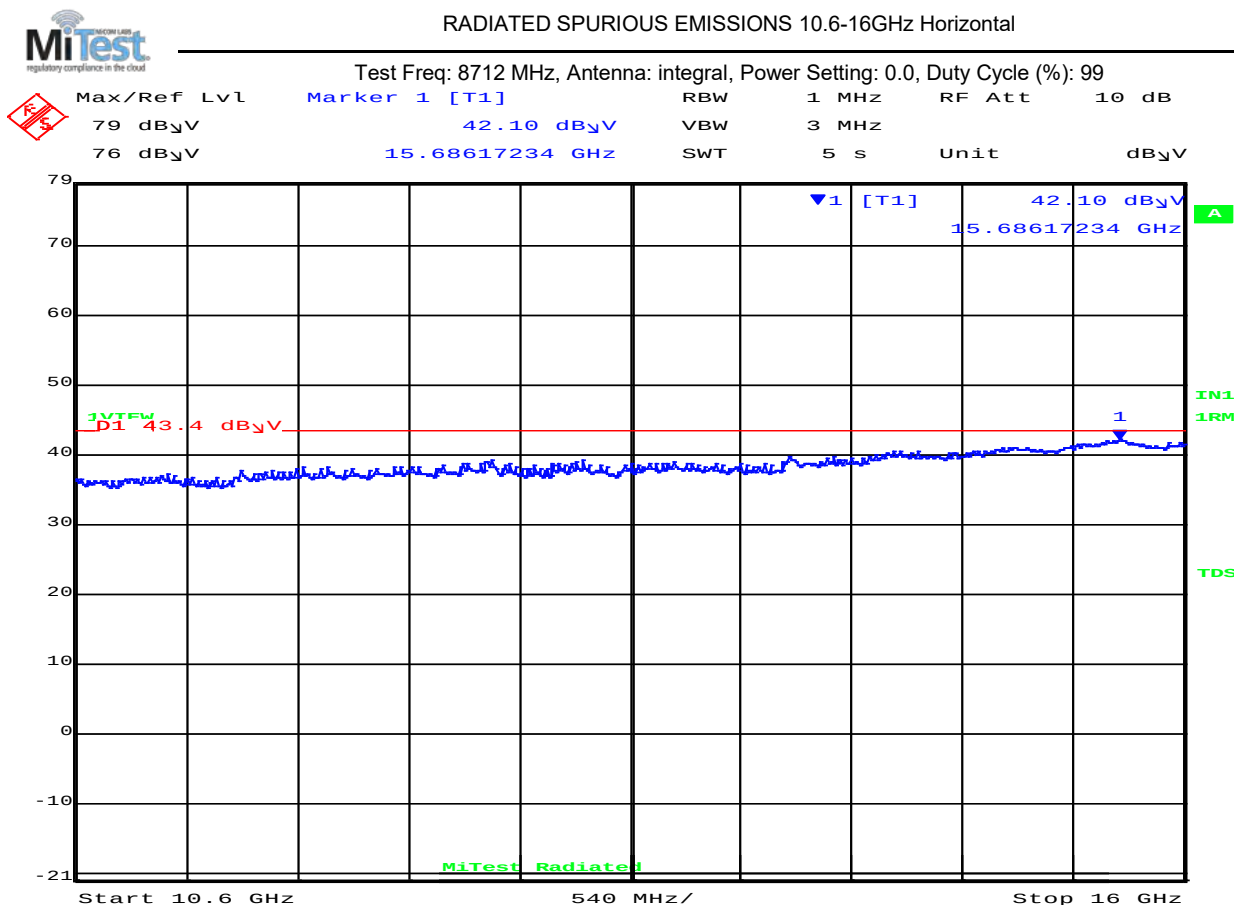


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:45:10

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.6	Average	Horizontal	150	0	43.4	-2.80	Pass

Test Notes:

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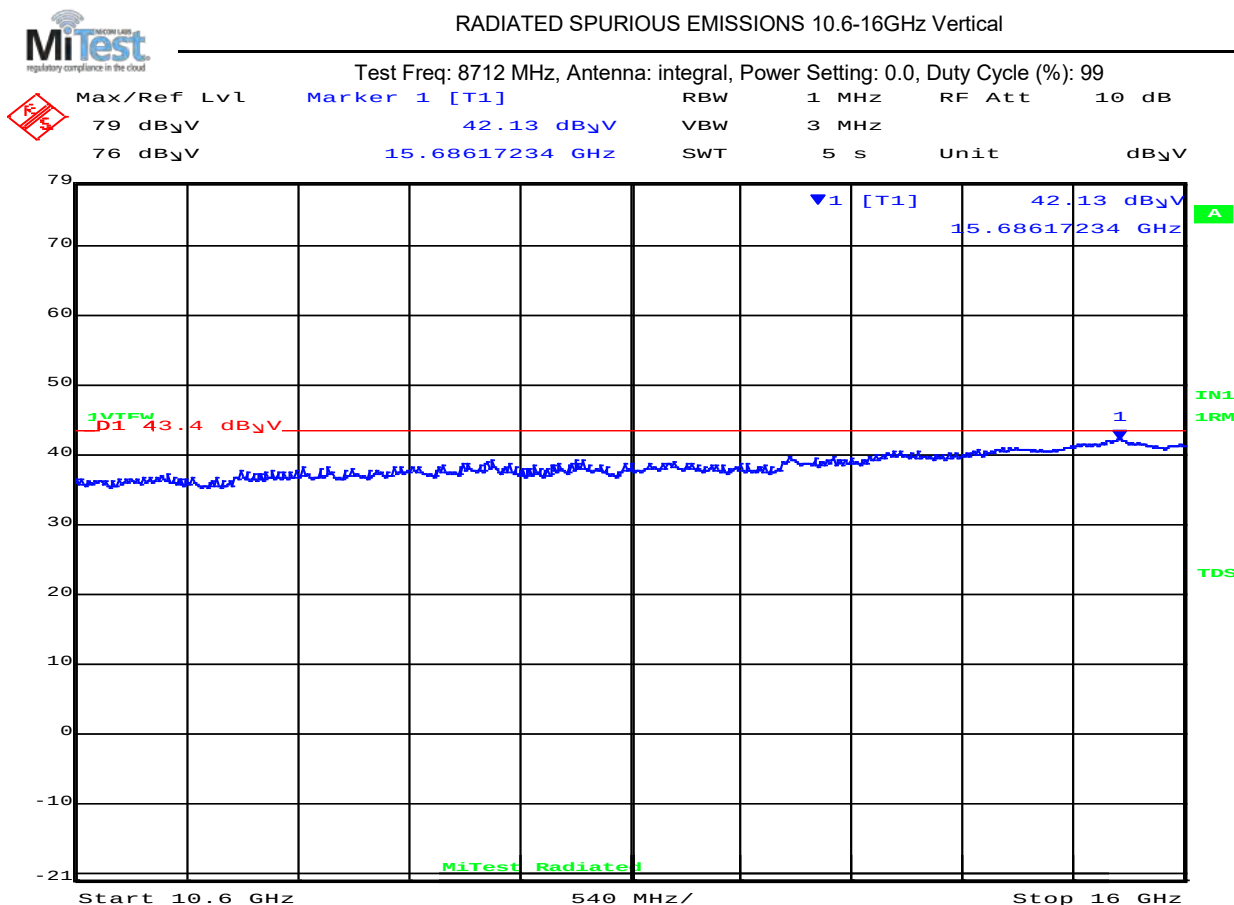


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



Date: 8.NOV.2018 09:47:03

10600.00 – 16000.00 GHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	40.7	Average	Vertical	150	0	43.4	-2.70	Pass

Test Notes:

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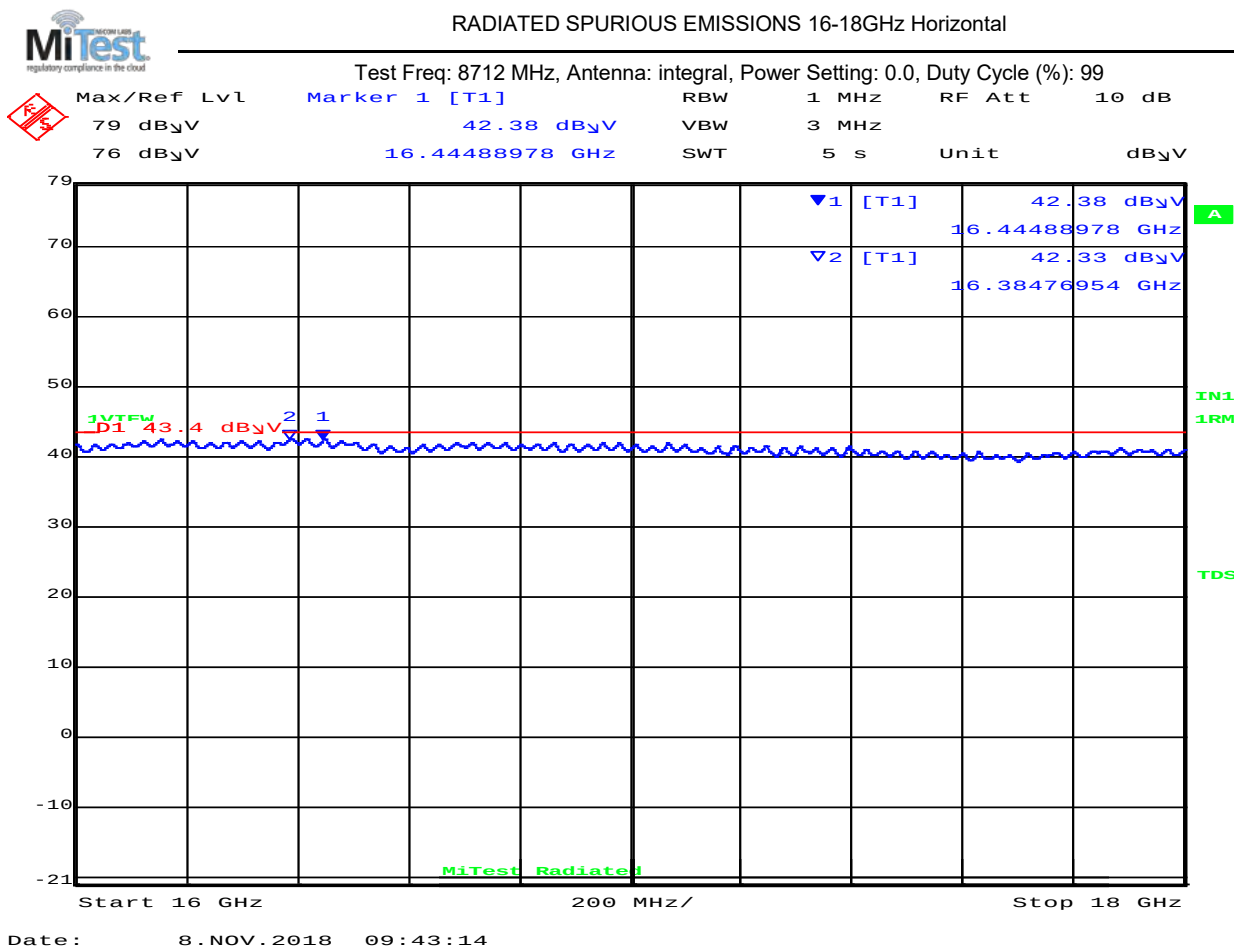


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	16444.9	41.4	Average	Horizontal	150	0	43.4	-2.00	Pass
2	16384.8	41.3	Average	Horizontal	150	0	43.4	-2.10	Pass

Test Notes:

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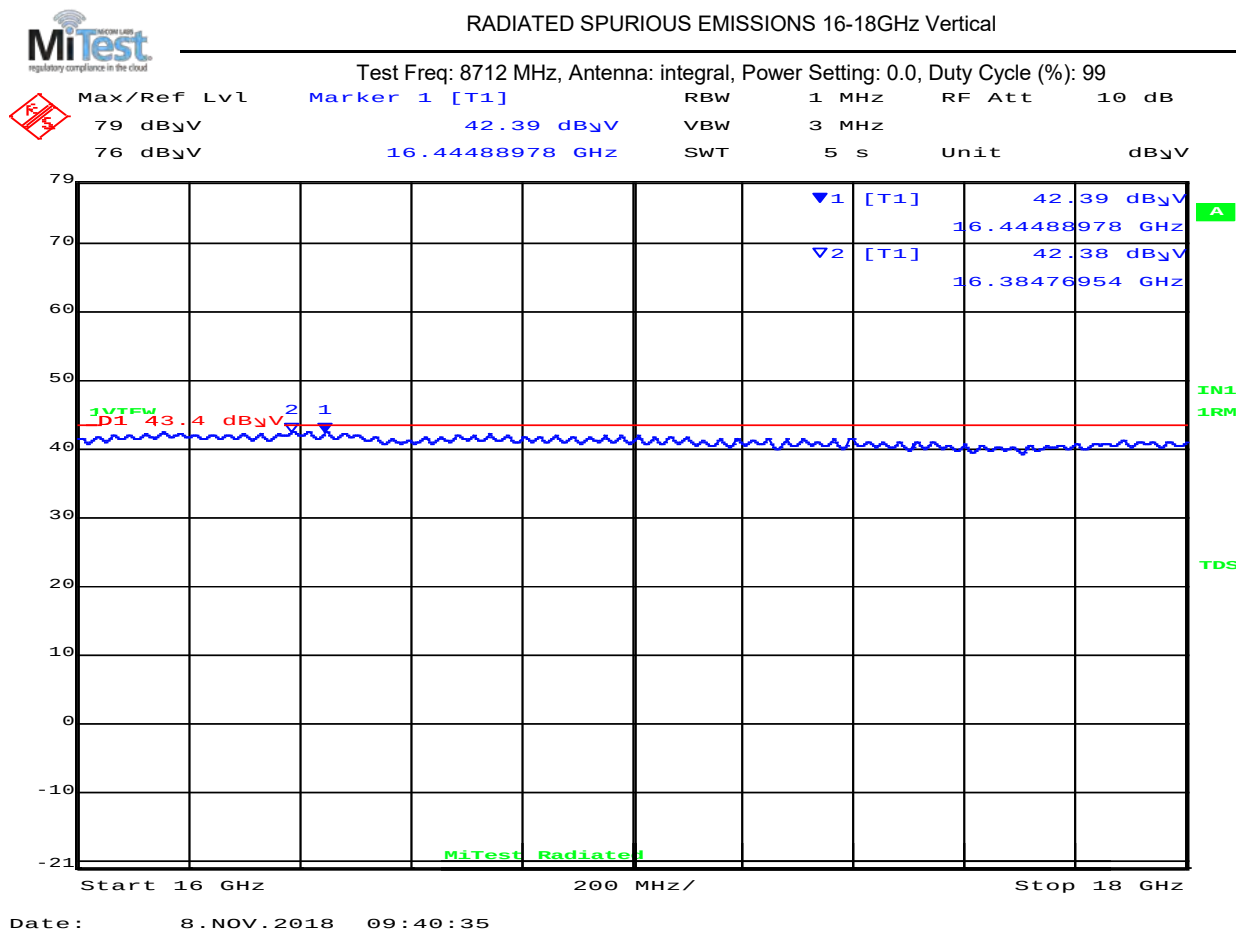


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	-1.8	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	8712.00	Data Rate:	
Power Setting:	0.0	Tested By:	JMH

Test Measurement Results



16000.00 – 18000.00 GHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16444.9	41.4	Average	Horizontal	150	0	43.4	-2.00	Pass
2	16384.8	41.3	Average	Horizontal	150	0	43.4	-2.10	Pass

Test Notes:

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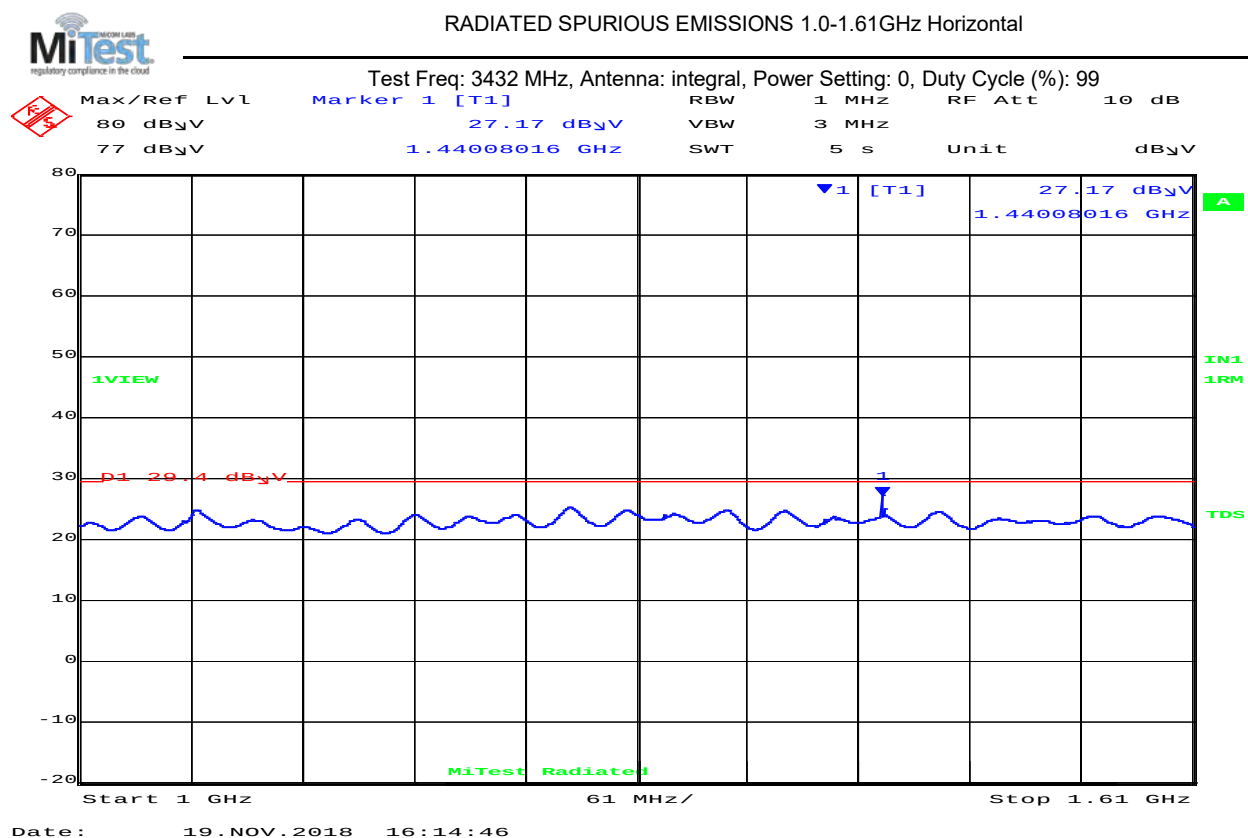
9.4.1.3. Combat AL5934

3432 MHz

Equipment Configuration for Spurious Emissions 1-1.61 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1000.00– 1610.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1440.08	26.9	Average	Horizontal	150	0	29.4	-2.5	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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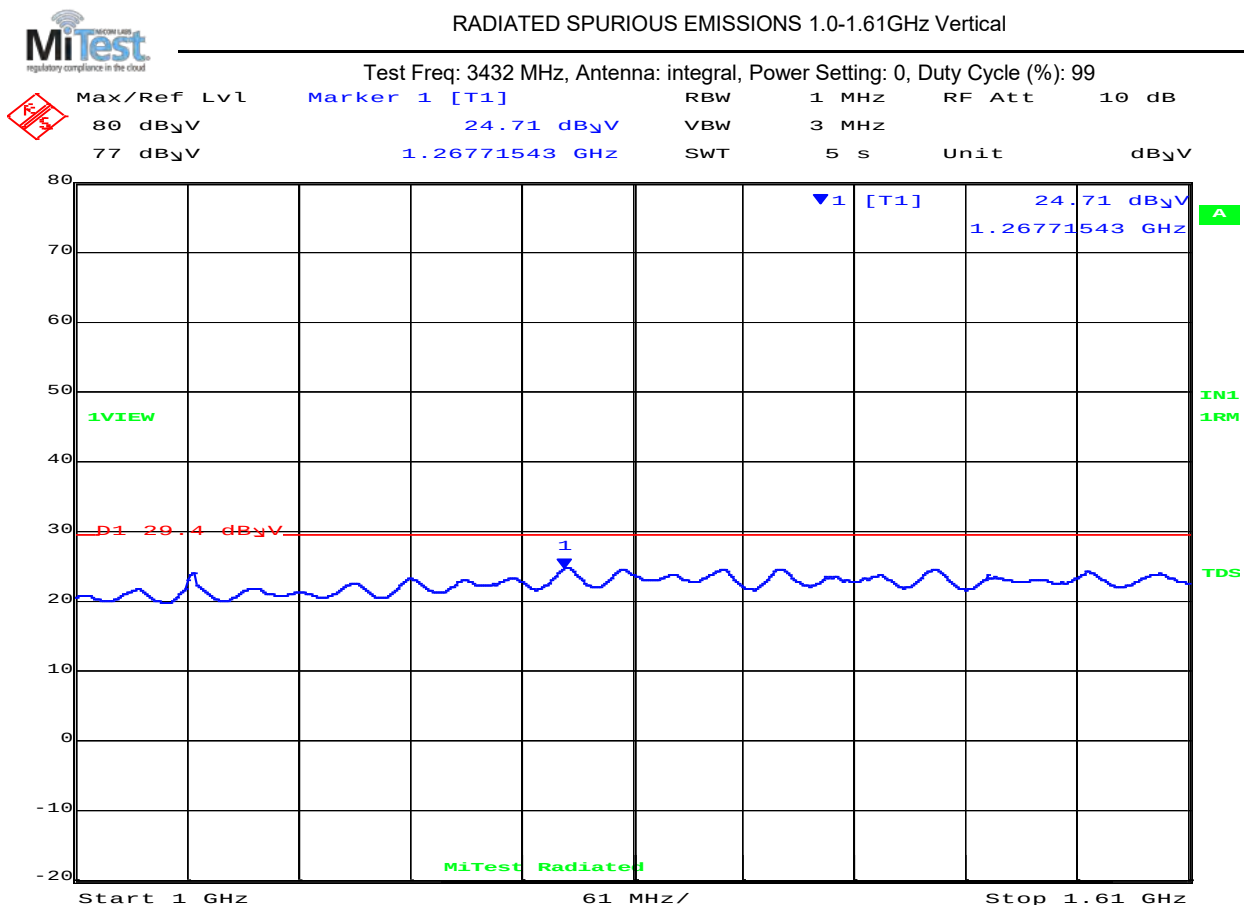


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1-1.61 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:16:56

1000.00– 1610.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	1267.72	23.90	Average	Vertical	150	0	29.4	-5.5	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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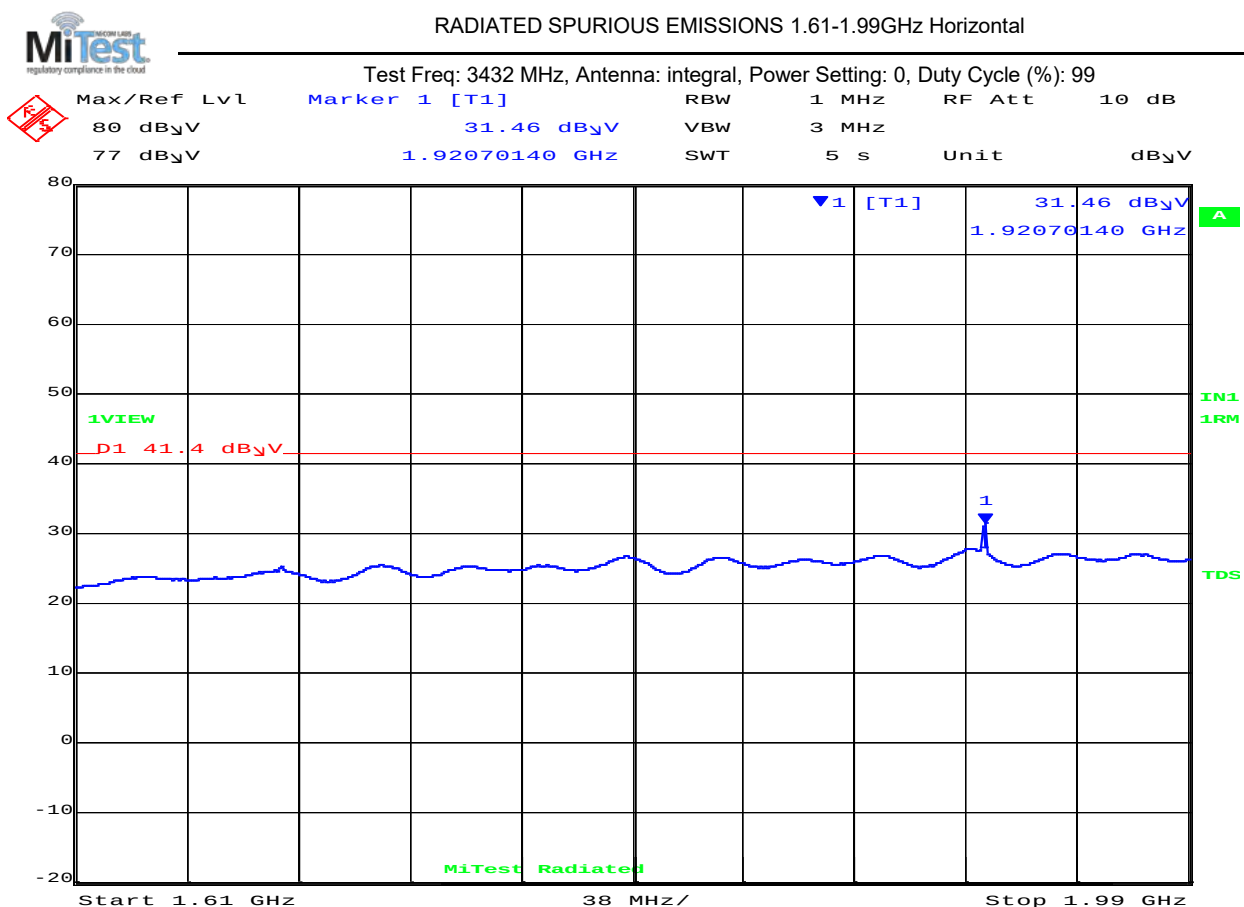


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.61 - 1.99 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:19:56

1610.00-1990.00MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)									

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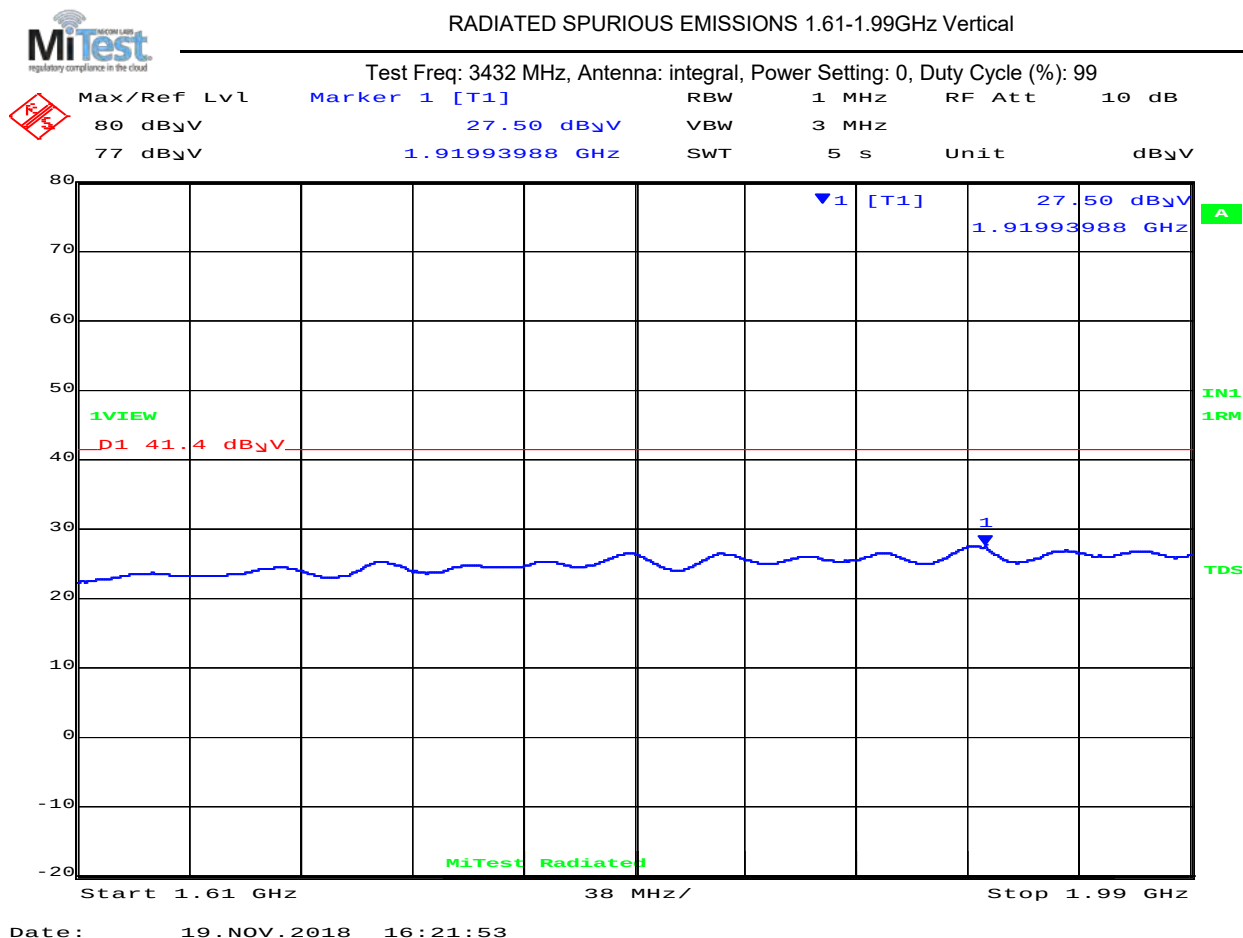


Title: Alereon AL5955, AL5930, AL5934
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Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 1.61 – 1.99 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

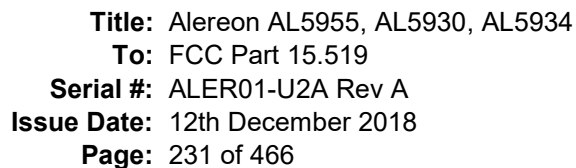
Test Measurement Results



1610.00 – 1990.00 MHz

Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)									

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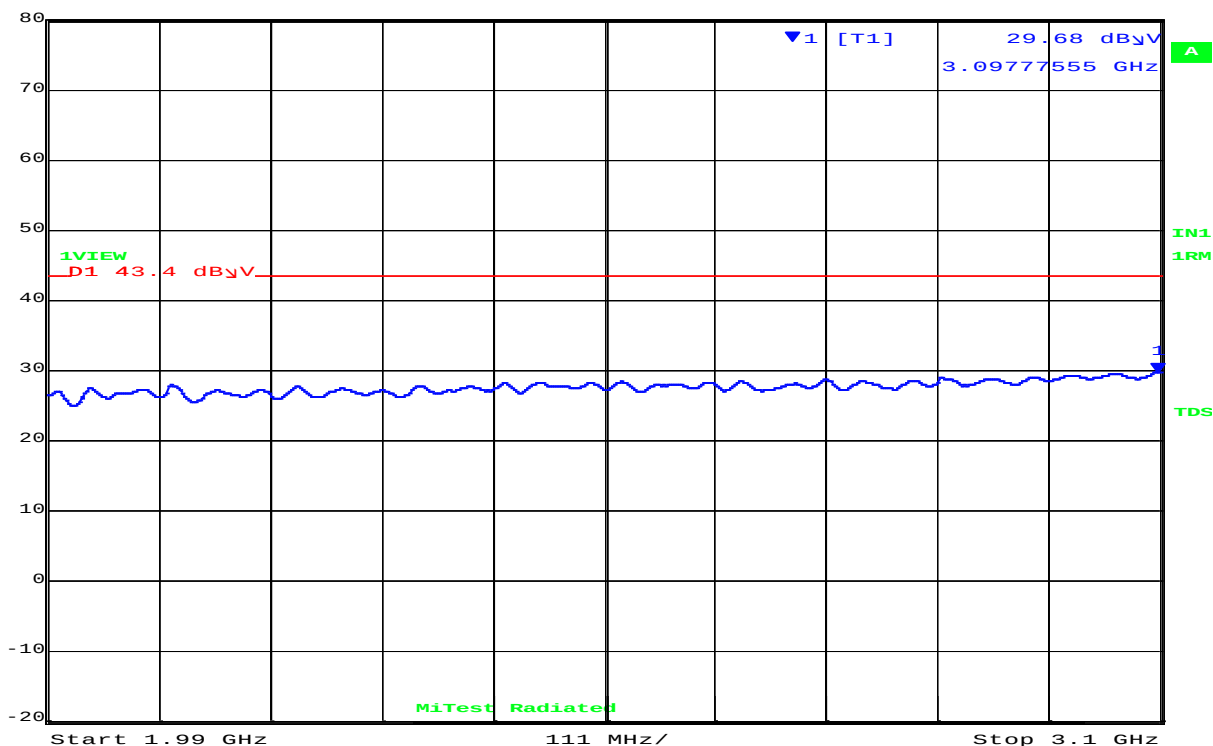


Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

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Test Freq: 3432 MHz, Antenna: integral, Power Setting: 0, Duty Cycle (%): 99

	Max/Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	10 dB
	80 dB μ V	29.68 dB μ V	VBW	3 MHz		
	77 dB μ V	3.09777555 GHz	SWT	5 s	Unit	dB μ V



Date: 19.NOV.2018 16:24:33

1990.00–3100.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)									

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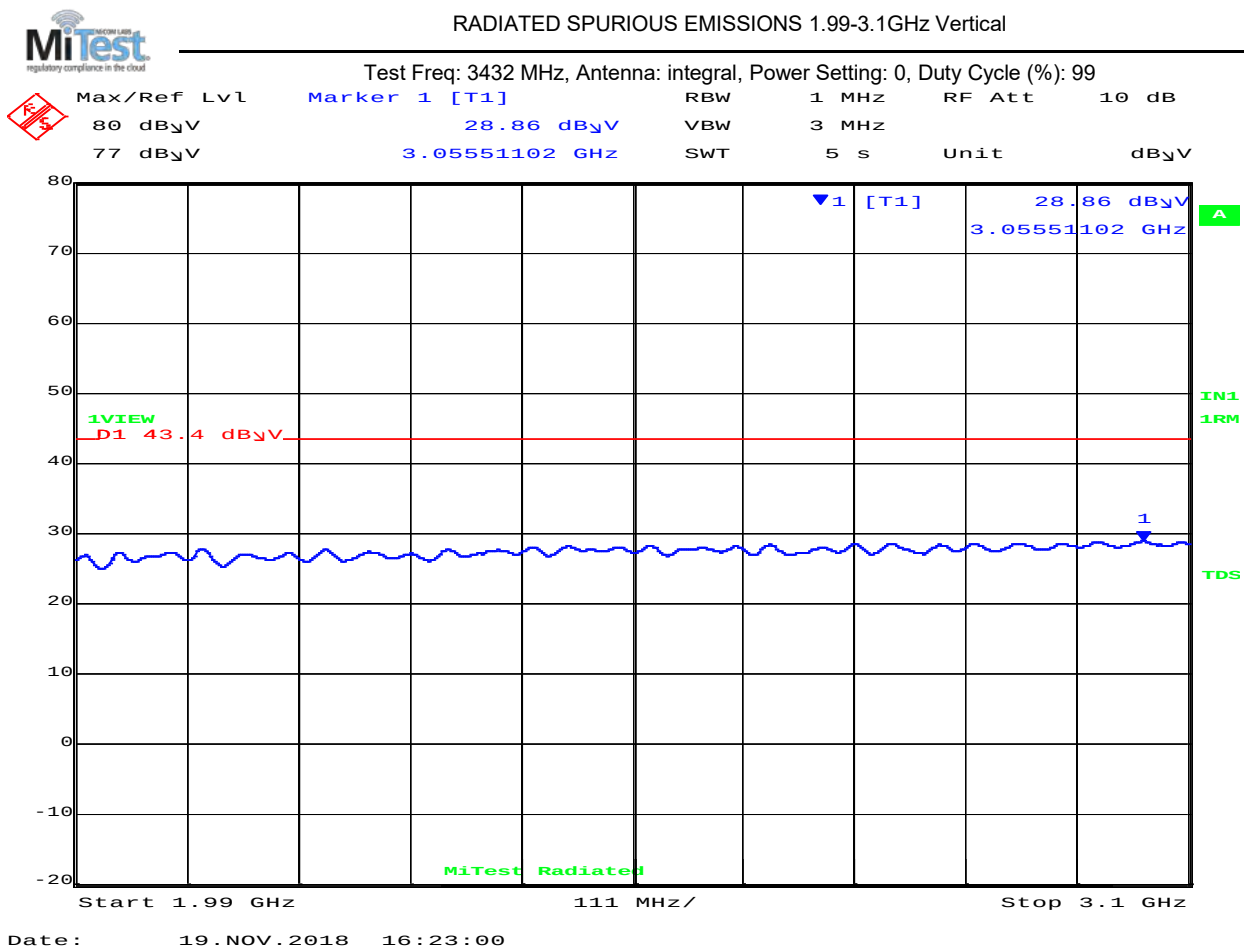


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 1.99 – 3.1 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



1990.00 – 3100.00 GHz

Num	Frequency MHz	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
No Signals within 6 dB of limit									
Test Notes: Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)									

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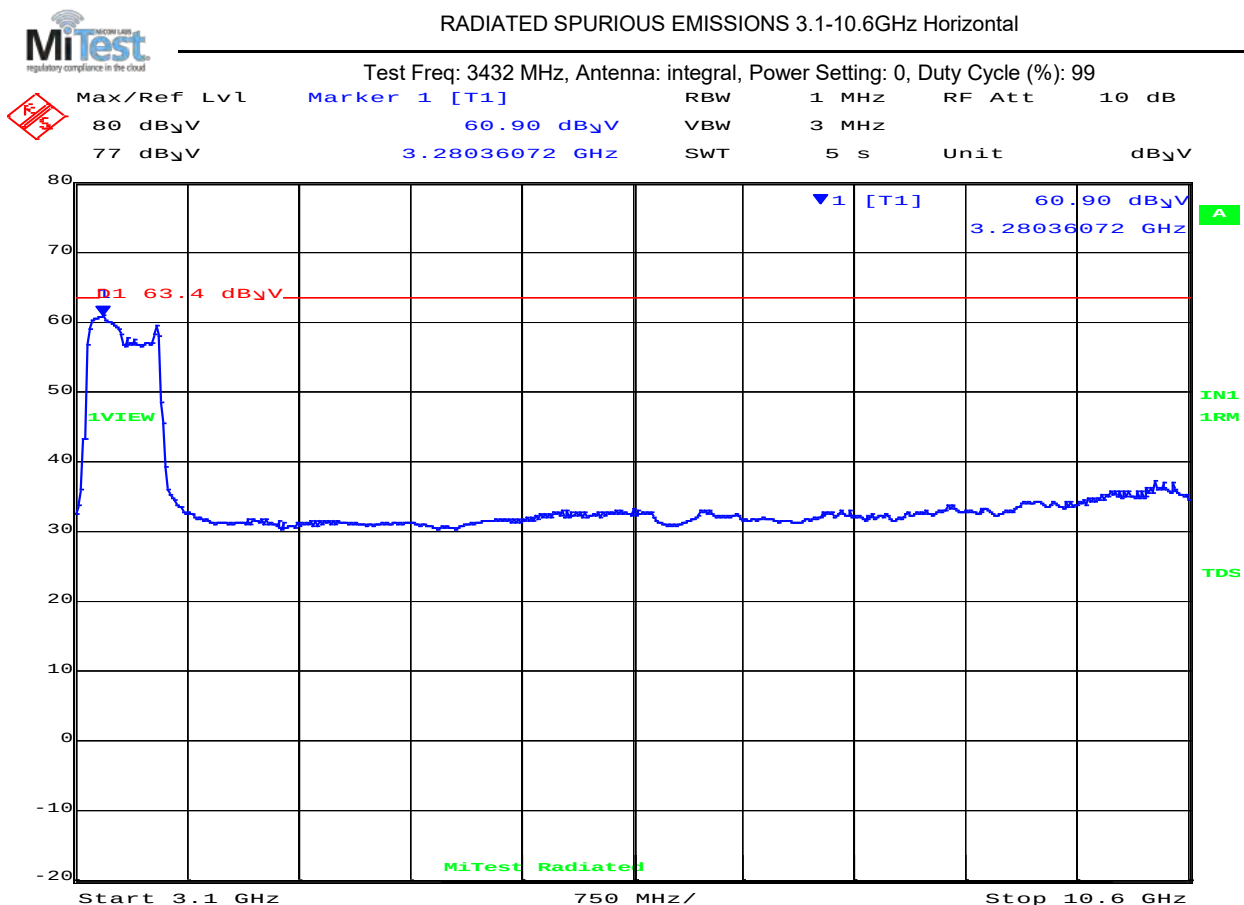


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:27:04

3100.00 - 10600.00 MHz

Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	3280.36	58.9	Average	Horizontal	150	0	63.4	-4.5	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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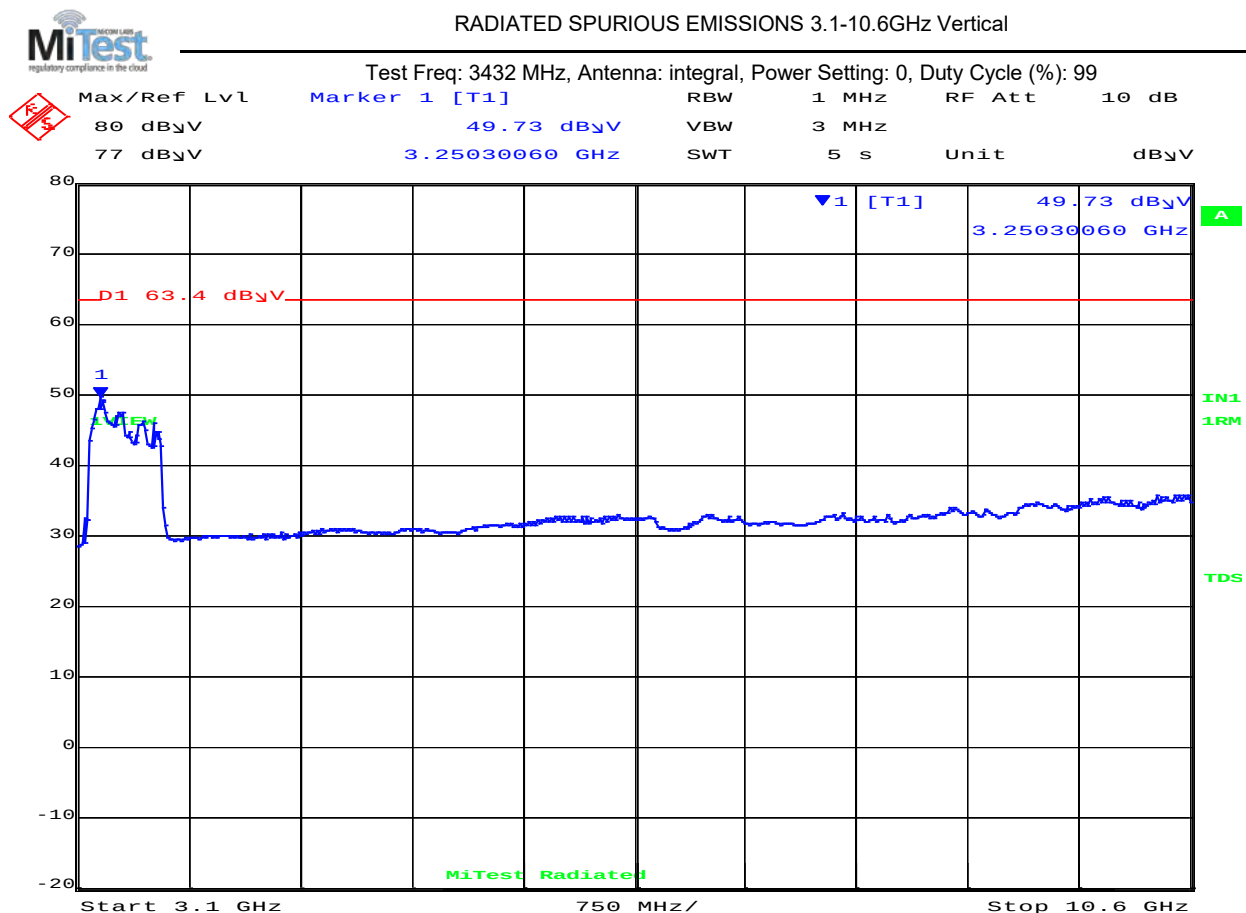


Title: Alereon AL5955, AL5930, AL5934
To: FCC Part 15.519
Serial #: ALER01-U2A Rev A
Issue Date: 12th December 2018
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Equipment Configuration for Spurious Emissions 3.1 – 10.6 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:30:14

3100.00 - 10600.00 MHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
No Signals within 6 dB of Limit									
Test Notes: Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)									

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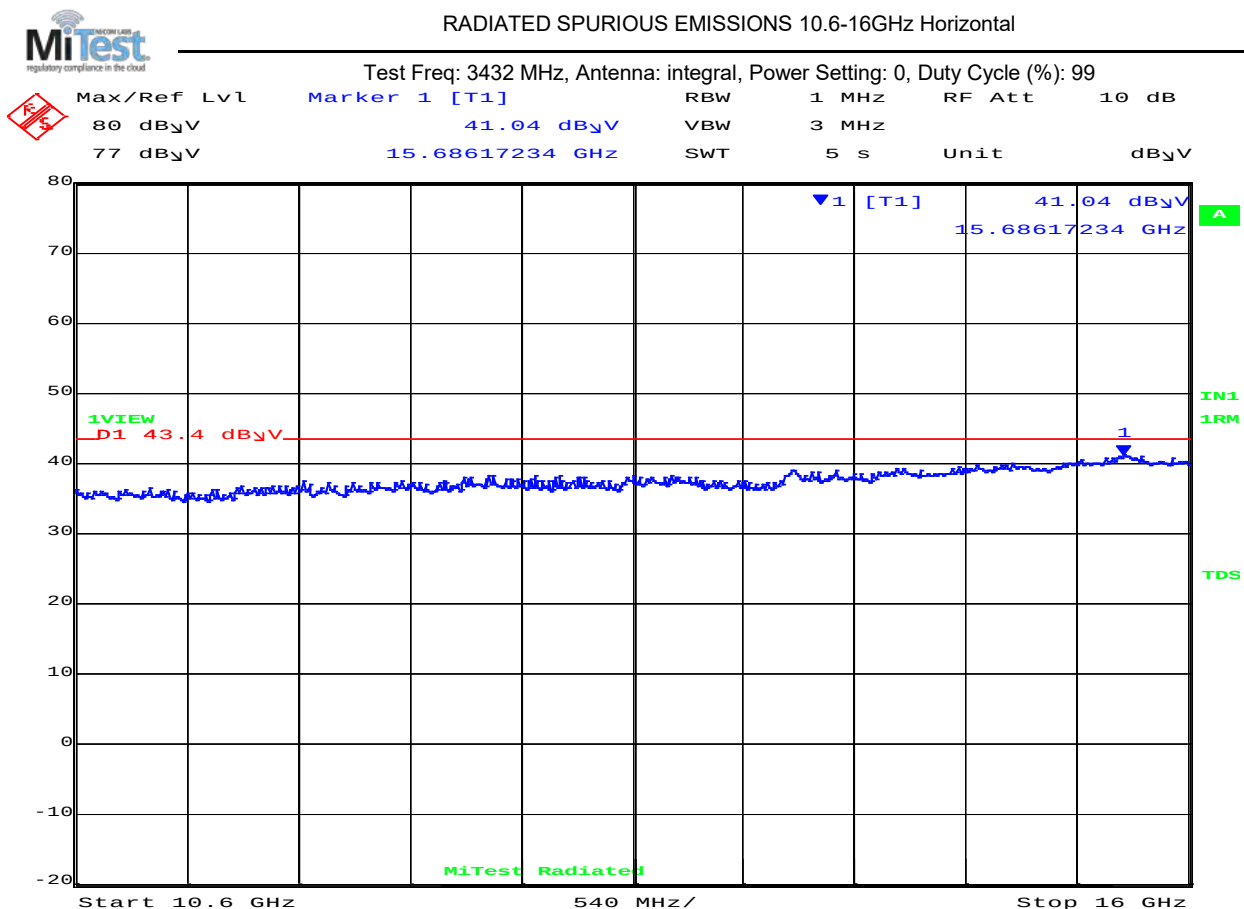


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:34:27

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dB μ V/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dB μ V/m	Margin dB	Pass /Fail
1	15686.2	39.8	Average	Horizontal	150	0	43.4	-3.6	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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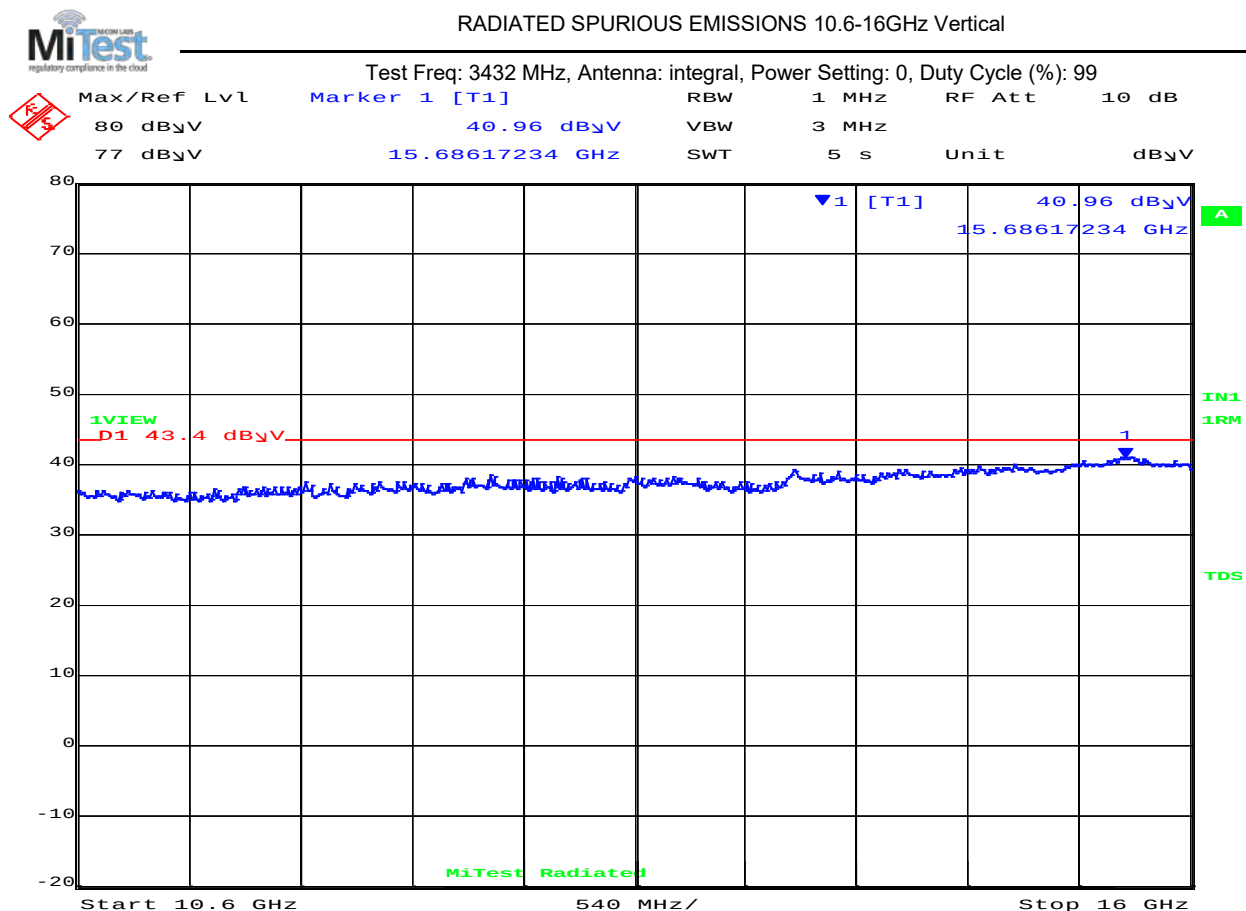


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 10.6 – 16.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:31:38

10600.00 – 16000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	15686.2	39.9	Average	Vertical	150	0	43.4	-3.5	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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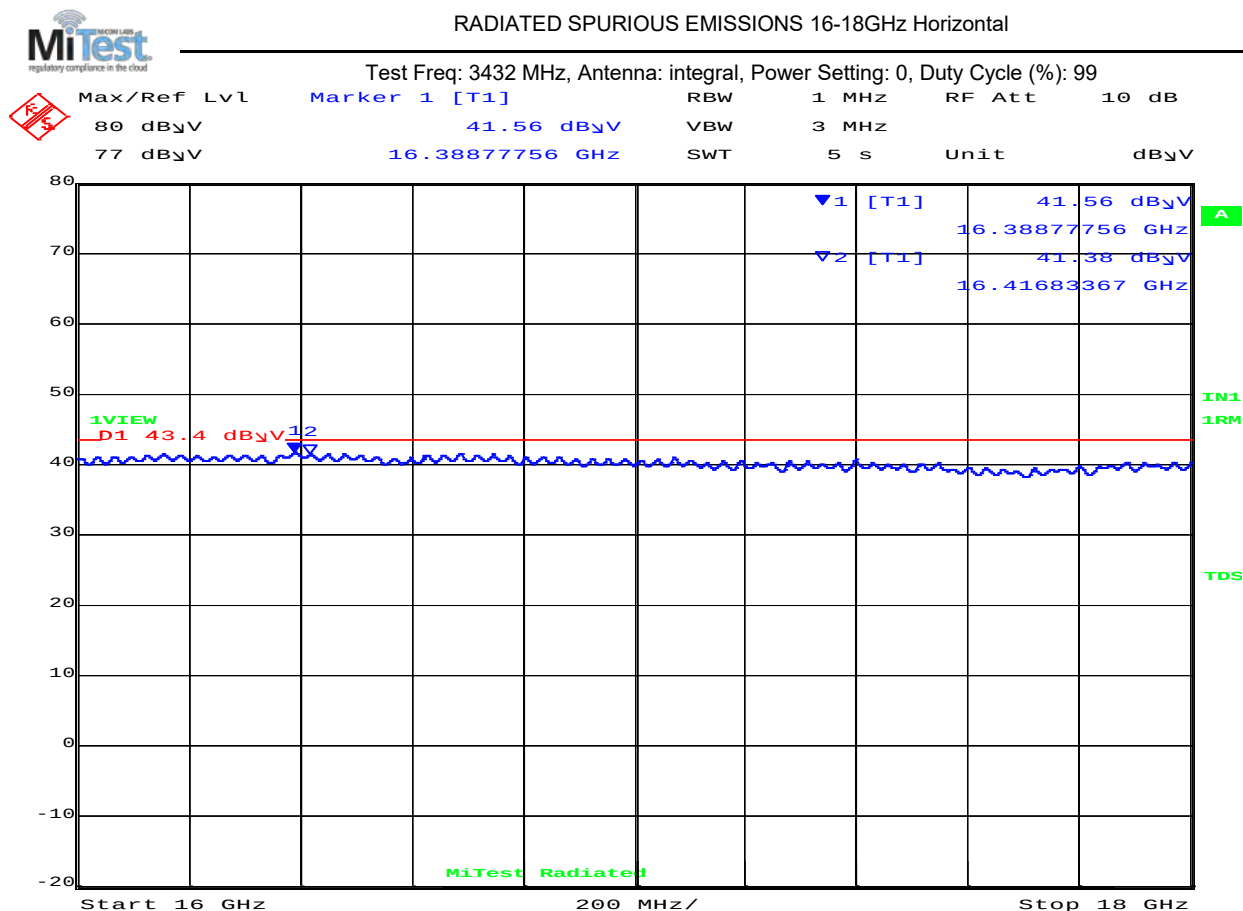


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Horizontal

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:36:32

16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16388.8	40.5	Average	Horizontal	150	0	43.4	-2.5	Pass
2	16416.8	40.3	Average	Horizontal	150	0	43.4	-3.1	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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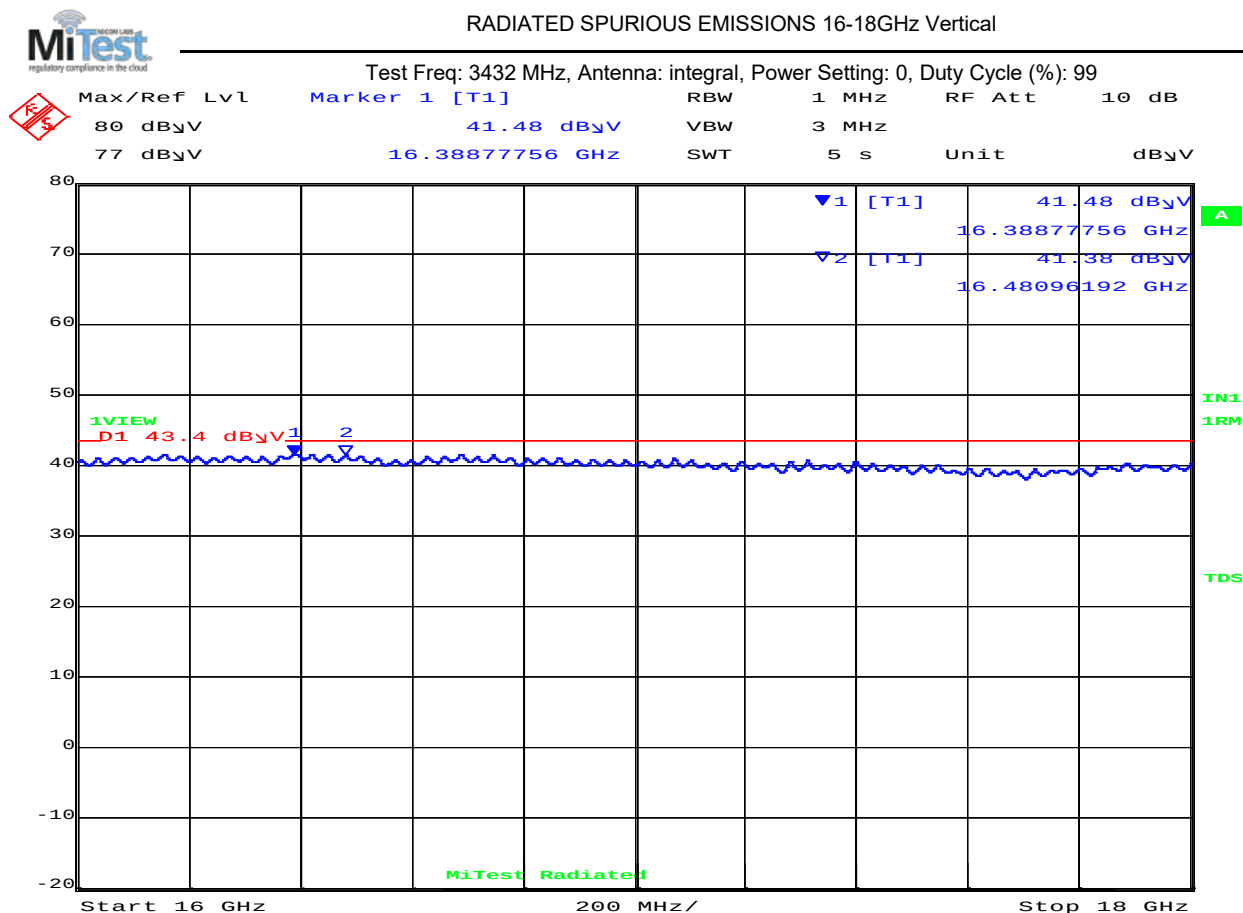


Title: Alereon AL5955, AL5930, AL5934
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Equipment Configuration for Spurious Emissions 16.0 – 18.0 GHz Vertical

Antenna:	Chip	Variant:	500 MHz Bandwidth
Antenna Gain (dBi):	1.0	Modulation:	BPM/BPSK
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99%
Channel Frequency (MHz):	3432.00	Data Rate:	
Power Setting:	Max	Tested By:	JMH

Test Measurement Results



Date: 19.NOV.2018 16:39:39

16000.00 – 18000.00 GHz									
Num	Frequency MHz	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	16388.8	40.5	Average	Vertical	150	0	43.4	-2.9	Pass
2	16481.0	40.3	Average	Vertical	150	0	43.4	-3.1	Pass

Test Notes:

Laptop connected via 10ft USB cable with Ferrites (TDK ZCAT-330-1236 and Fair-Rite Type 61 with one turn at each end)

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