

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC141598 Page: 1 of 85

FCC Radio Test Report FCC ID: 2ADVS-ML131

Original Grant

Report No. : TB-FCC141598

Applicant: Mego Optoelectronics (Tianjin) Co., Ltd.

Equipment Under Test (EUT)

EUT Name : LED Pico Projector

Model No. : ML131

Series Model No. : Please see the page of 4

Brand Name : MEGO/MEGAPOWER

Receipt Date : 2014-08-05

Test Date : 2014-08-06 to 2015-01-05

Issue Date : 2015-01-07

Standards : FCC Part 15, Subpart C (15.247:2014)

Test Method : ANSI C63.4:2003

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above,

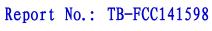
The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer :

Approved& Authorized :

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0





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1. General Information about EUT

1.1 Client Information

Applicant: Mego Optoelectronics (Tianjin) Co., Ltd.

Address : 202-1Unit, BuildingD, Hi-Tech Haitai innovation Base, Tianjin, China

Manufacturer: Tianjin Greatstrongind Opticalelectric Industrial Co., Ltd.

Address : 7H, Hua Chuang Building, No.8 JinPing Road, Nankai District,

Tianjin, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	LED Pico Projector				
Models No.	:	ML131, ML132, ML133, ML134, ML135 ,ML136, ML137, ML138,				
		ML139, G2, G3, G4, G5, G6, G7, G8, G9, G10, G20, G30, G50, G80				
Model	:	All the other models are ider	ntical in the same PCB layout, interior structure and			
Difference		electrical circuits, The only d	lifference is model name for commercial purpose.			
		Operation Frequency:				
		802.11b/g/n(HT20): 2412				
		802.11n(HT40): 2422MH	z~2452MHz			
Product		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)			
Description	:		802.11n(HT40): 7 channels see note(3)			
		RF Output Power:	802.11b: 9.03 dBm			
			802.11g: 9.04dBm			
			802.11n (HT20): 9.06 dBm			
			802.11n (HT40): 8.99 dBm			
		Antenna Gain: 0 dBi (FPC Antenna)				
		Modulation Type:	802.11b: DSSS (CCK, QPSK, BPSK)			
			802.11g: OFDM			
			802.11n: OFDM			
		Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps			
			802.11g:54/48/36/24/18/12/9/6 Mbps			
			802.11n:up to 150Mbps			
Power Supply	:	DC power supplied by AC	C/DC Adapter			
		DC Voltage supplied from Li-ion battery.				
Power Rating	:	Input: AC 100~240V 50/60Hz 1.0A Max				
		DC 7.4V 10Wh from Li-ion battery				
		Output: DC 12V 2000mA				
Connecting	:	Please refer to the User's Manual				
I/O Port(S)						
Note: More detailed features description, please refer to the manufacturer's specifications or the User's						

Note: More detailed features description, please refer to the manufacturer's specifications or the User's Manual.



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Note:

(1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v03r02.

- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (3) Antenna information provided by the applicant.
- (4) Channel List:

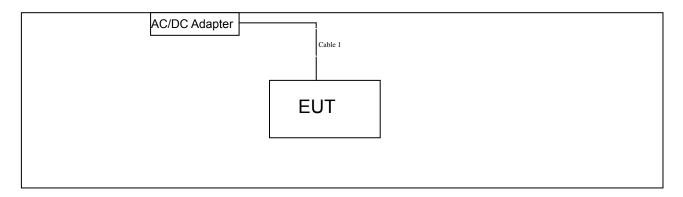
CH 01~CH 11 for 802.11b/g/n(HT20)

CH 03~CH 09 for 802.11n(HT40)

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

Equipment Information							
Name Model S/N Manufacturer Used "√"							
/ /			1	/			
	Cable Information						
Number	Shielded Type	Ferrite Core	Length	Note			
Cable 1	NO	NO	1.6M	Accessories			



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1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test			
Final Test Mode Description			
Mode 1	AC Charging with TX B Mode		

For Radiated Test				
Final Test Mode	Description			
Mode 3	TX Mode B Mode Channel 01/06/11			
Mode 4	TX Mode G Mode Channel 01/06/11			
Mode 5	TX Mode N(HT20) Mode Channel 01/06/11			
Mode 6	TX Mode N(HT40) Mode Channel 03/06/09			

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.4 standards, the measurements are performed at the highest, LED Pico Projectordle, lowest available channels, and the worst case data rate as follows:

802.11b Mode: CCK (1 Mbps) 802.11g Mode: OFDM (6 Mbps)

802.11n (HT20) Mode: MCS 0 (6.5 Mbps) 802.11n (HT40) Mode: MCS 0 (13 Mbps)

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN.



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Test Software Version	Realtek 11n Single	Realtek 11n Single Chip 92C USB WLAN MP Diagnostic Program				
Channel	CH 01	CH 06	CH 11			
IEEE 802.11b DSSS	DEF	DEF	DEF			
IEEE 802.11g OFDM	DEF	DEF	DEF			
IEEE 802.11n (HT20)	DEF	DEF	DEF			
Channel	CH 03	CH 06	CH 09			
IEEE 802.11n (HT40)	DEF	DEF	DEF			

1.7 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.



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2. Test Summary

FCC Part 15 Subpart C(15.247)/RSS-210: 2010					
Standaı	rd Section	Test Item	ludamont	Remark	
FCC	IC	rest item	Judgment	Remark	
15.203	1	Antenna Requirement	PASS	N/A	
15.207	RSS-GEN 7.2.4	Conducted Emission	PASS	N/A	
15.205	RSS-GEN 7.2.2	Restricted Bands	PASS	N/A	
15.247(a)(2)	RSS-210	6dB Bandwidth	PASS	N/A	
	A.8.2(a)	Cab barraman	17100		
15.247(b)	RSS-210	Peak Output Power	PASS	N/A	
13.247(0)	A.8.4(4)	Feak Output Fower	PASS	IN/A	
45.047(a)	RSS-210	Dower Chaptral Daneity	DACC	NI/A	
15.247(e)	A.8.2(b)	Power Spectral Density	PASS	N/A	
45.047(4)	RSS-210	Transmitter Radiated Spurious	D4.00	NI/A	
15.247(d)	Annex 8 (A8.5)	Emission	PASS	N/A	
4E 047(d)	RSS-210	Antenna Conducted	PASS	NI/A	
15.247(d)	Annex 8 (A8.5)	Spurious Emission		N/A	

Note: "/" for no requirement for this test item.

N/A is an abbreviation for Not Applicable.



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3. Conducted Emission Test

3.1 Test Standard and Limit

3.1.1Test Standard FCC Part 15.207

3.1.2 Test Limit

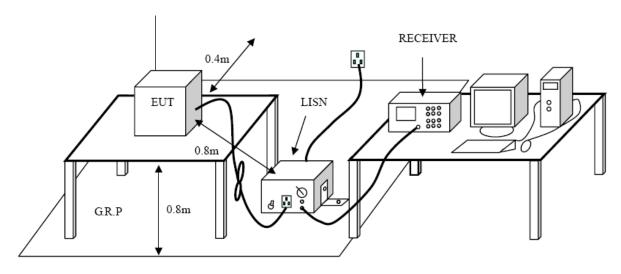
Conducted Emission Test Limit

Eraguanav	Maximum RF Line Voltage (dBμV)		
Frequency	Quasi-peak Level	Average Level	
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *	
500kHz~5MHz	56	46	
5MHz~30MHz	60	50	

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.2 Test Setup



3.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

3.4 Test Equipment Used

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test	ROHDE&		400004	Aug. 08, 2014	Aug. 07, 2015
Receiver	SCHWARZ	ESCI	100321	Aug. 00, 2014	Aug. 07, 2015
50ΩCoaxial	Anritsu	MP59B	X10321	Aug. 08, 2014	Aug. 07, 2015
Switch			X10321	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 08, 2014	Aug. 07, 2015

3.5 EUT Operating Mode

Please refer to the description of test mode.

3.6 Test Data

Please see the next page.



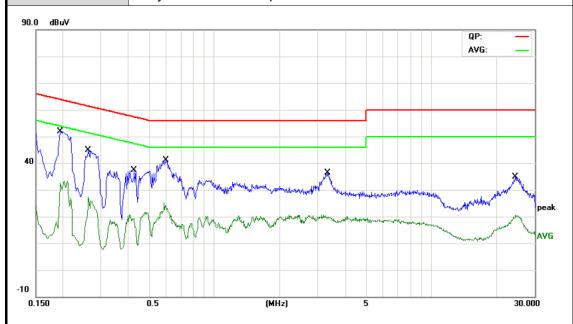
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EUT:	LED Pico Projector	Model Name :	ML131
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		

Test Voltage:

Terminal: Line **Test Mode:** AC Charging with TX B Mode

Remark: Only worse case is reported



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBu∀	dB	dBuV	dBu∀	dB	Detector
1	0.1940	31.56	10.01	41.57	63.86	-22.29	QP
2	0.1940	12.90	10.01	22.91	53.86	-30.95	AVG
3	0.2620	25.43	10.02	35.45	61.36	-25.91	QP
4	0.2620	10.56	10.02	20.58	51.36	-30.78	AVG
5	0.4260	23.47	10.02	33.49	57.33	-23.84	QP
6	0.4260	8.68	10.02	18.70	47.33	-28.63	AVG
7 *	0.5980	26.48	10.07	36.55	56.00	-19.45	QP
8	0.5980	12.02	10.07	22.09	46.00	-23.91	AVG
9	3.3300	16.22	10.02	26.24	56.00	-29.76	QP
10	3.3300	8.94	10.02	18.96	46.00	-27.04	AVG
11	24.4020	16.11	10.16	26.27	60.00	-33.73	QP
12	24.4020	7.65	10.16	17.81	50.00	-32.19	AVG

^{*:}Maximum data x:Over limit !:over margin



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EUT:	LED Pico Projector	Model Name :	ML131
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz	,	
Terminal:	Neutral	_	-
Test Mode:	AC Charging with TX B M	/lode	-
Remark:	Only worse case is report		
90.0 dBuV			
40 40 -10 0.150	0.5 (MHz)	5	QP:
No. Mk. Fre	Reading Corrected. Level Factor	1	Over
MI	Hz dBuV dB	dBuV dBuV	dB Detector
1 0.19	940 31.49 10.12	41.61 63.86	-22.25 QP
2 0.19	940 11.80 10.12	21.92 53.86	-31.94 AVG
3 0.27	700 25.41 10.10	35.51 61.12	-25.61 QP
4 0.27	700 10.31 10.10	20.41 51.12	-30.71 AVG
5 * 0.57	780 26.12 10.02	36.14 56.00	-19.86 QP
6 0.57	780 11.18 10.02	21.20 46.00	-24.80 AVG
7 0.92	260 21.12 10.13	31.25 56.00	-24.75 QP
8 0.92	260 9.77 10.13	19.90 46.00	-26.10 AVG
9 3.19	980 17.03 10.06	27.09 56.00	-28.91 QP
10 3.19	980 5.70 10.06	15.76 46.00	-30.24 AVG
11 25.18	320 18.21 10.06	28.27 60.00	-31.73 QP
12 25.18	9.96 10.06	20.02 50.00	-29.98 AVG
*:Maximum data x:Ove	er limit !:over margin		



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4. Radiated Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard FCC Part 15.209

4.1.2 Test Limit

Radiated Emission Limits (9kHz~1000MHz)

(
Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)						
0.009~0.490	2400/F(KHz)	300						
0.490~1.705	24000/F(KHz)	30						
1.705~30.0	30	30						
30~88	100	3						
88~216	150	3						
216~960	200	3						
Above 960	500	3						

Radiated Emission Limit (Above 1000MHz)

Frequency	Class A (dBuV	/m)(at 3 M)	Class B (dBuV/m)(at 3 M)		
(MHz)	Peak Average		Peak Average		
Above 1000	80	60	74	54	

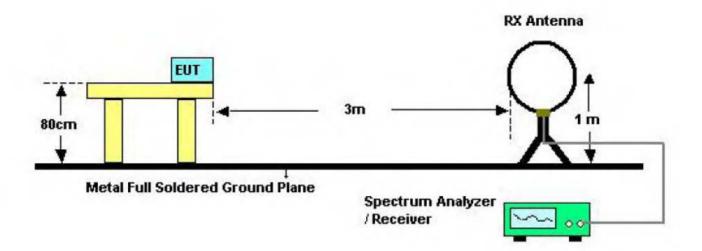
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

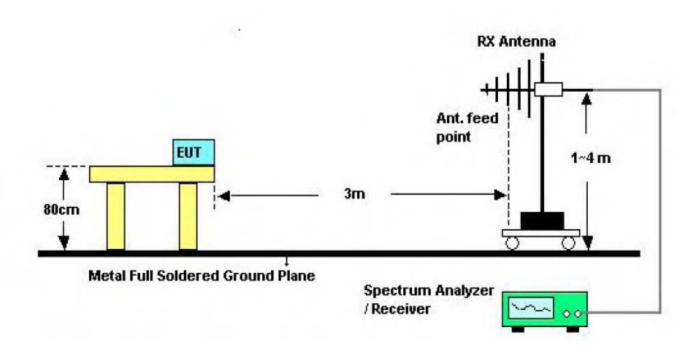


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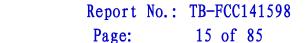
4.2 Test Setup



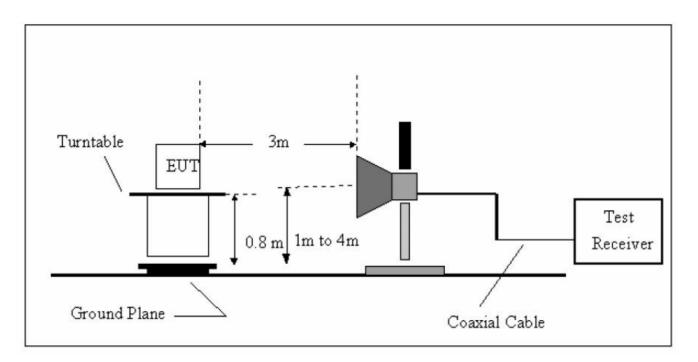
Below 30MHz Test Setup



Below 1000MHz Test Setup







Above 1GHz Test Setup

4.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (7) For the actual test configuration, please see the test setup photo.

4.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.



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4.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 08, 2014	Aug. 07, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 08, 2014	Aug. 07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNE R	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

4.6 Test Data

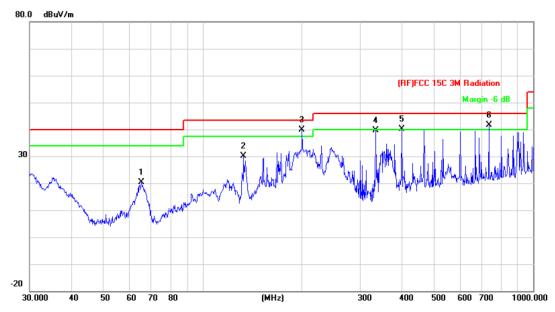
Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX B Mode 2412MHz					
Remark:	Only worse case is reported					



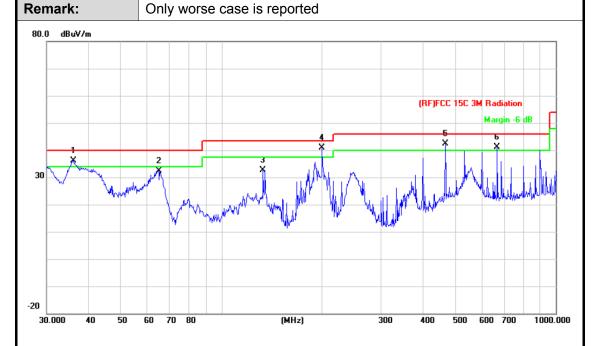
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		65.3431	44.37	-24.04	20.33	40.00	-19.67	peak
2		133.1511	52.35	-22.12	30.23	43.50	-13.27	peak
3	*	199.9856	60.23	-20.39	39.84	43.50	-3.66	peak
4		333.6865	55.20	-15.61	39.59	46.00	-6.41	peak
5	ļ	400.4318	52.83	-12.80	40.03	46.00	-5.97	peak
6	İ	734.4913	48.65	-7.12	41.53	46.00	-4.47	peak

^{*:}Maximum data x:Over limit !:over margin



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz	AC 120V/60 Hz					
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2412MHz						



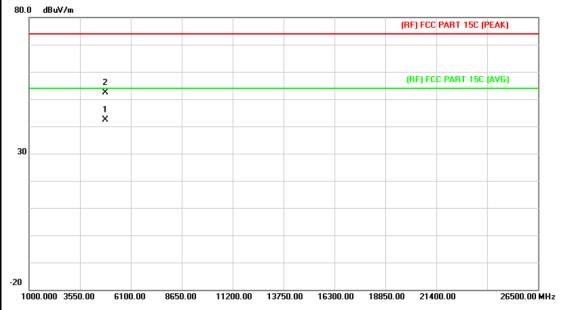
١	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		İ	36.0007	53.80	-17.67	36.13	40.00	-3.87	peak
2			64.8863	56.49	-24.08	32.41	40.00	-7.59	peak
3			133.1511	54.80	-22.12	32.68	43.50	-10.82	peak
4		*	199.9856	61.38	-20.39	40.99	43.50	-2.51	peak
5		!	467.2348	54.28	-11.86	42.42	46.00	-3.58	peak
6		İ	668.1422	48.97	-7.87	41.10	46.00	-4.90	peak

^{*:}Maximum data x:Over limit !:over margin



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz						
Ant. Pol.	Horizontal	Horizontal					
Test Mode:	TX B Mode 2412MHz						
Remark:	No report for the emissio prescribed limit.	n which more than 10 c	dB below the				

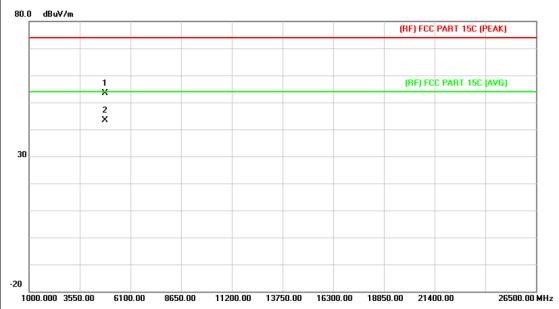


No	o. Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.954	34.18	8.19	42.37	54.00	-11.63	AVG
2		4823.962	44.15	8.19	52.34	74.00	-21.66	peak



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2412MHz	TX B Mode 2412MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

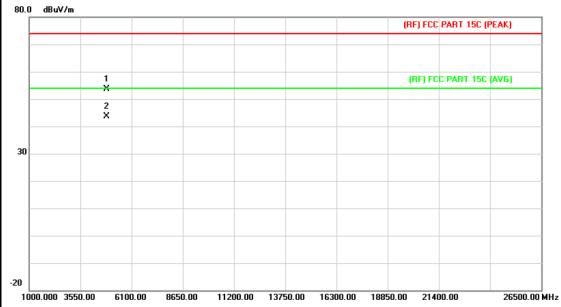


No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.654	45.17	8.19	53.36	74.00	-20.64	peak
2	*	4823.703	35.16	8.19	43.35	54.00	-10.65	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX B Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

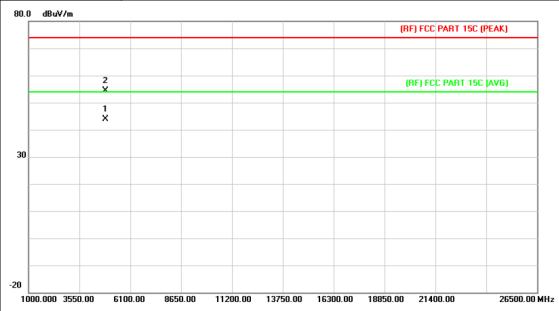


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.968	45.47	8.21	53.68	74.00	-20.32	peak
2	*	4873.976	35.48	8.21	43.69	54.00	-10.31	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

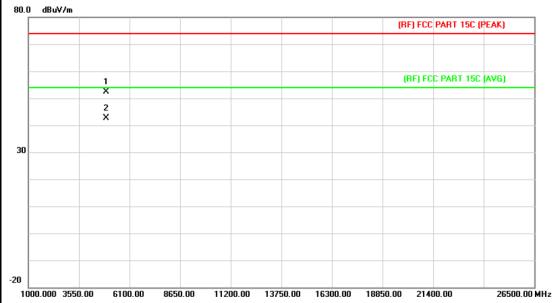


ı	No.	Mk.	Freq.	_		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4873.965	35.64	8.21	43.85	54.00	-10.15	AVG
2			4873.987	46.10	8.21	54.31	74.00	-19.69	peak



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz	AC 120V/60 Hz					
Ant. Pol.	Horizontal						
Test Mode:	TX B Mode 2462MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit						
	prescribed limit.						

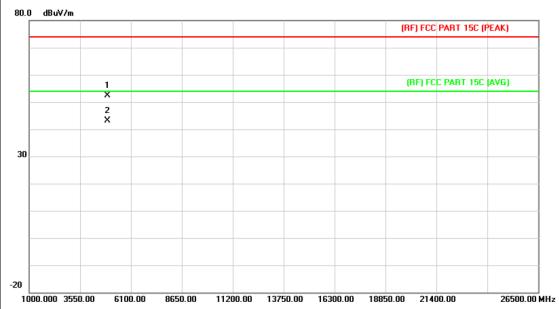


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.964	44.17	8.22	52.39	74.00	-21.61	peak
2	*	4923.964	34.31	8.22	42.53	54.00	-11.47	AVG



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LED Pico Projector	Model:	ML131				
25 ℃	Relative Humidity:	55%				
AC 120V/60 Hz	AC 120V/60 Hz					
Vertical						
TX B Mode 2462MHz						
No report for the emission which more than 10 dB below the prescribed limit.						
	25 °C AC 120V/60 Hz Vertical TX B Mode 2462MHz No report for the emissio	25 °C Relative Humidity: AC 120V/60 Hz Vertical TX B Mode 2462MHz No report for the emission which more than 10 co				

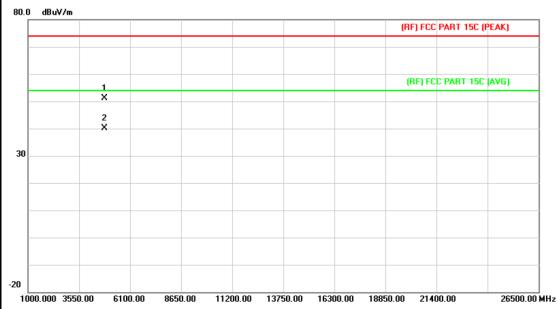


No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.978	44.15	8.22	52.37	74.00	-21.63	peak
2	*	4923.978	34.91	8.22	43.13	54.00	-10.87	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2412MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

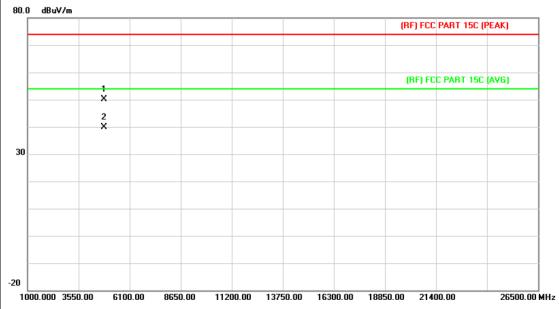


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.897	42.82	8.19	51.01	74.00	-22.99	peak
2	*	4823.897	31.92	8.19	40.11	54.00	-13.89	AVG



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz						
Ant. Pol.	Vertical						
Test Mode:	TX G Mode 2412MHz						
Remark:	No report for the emissio prescribed limit.	No report for the emission which more than 10 dB below the prescribed limit.					

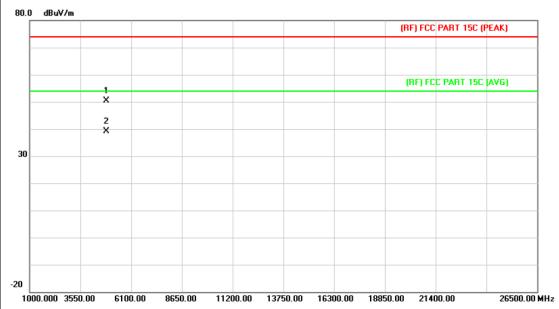


No	o. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.966	41.93	8.19	50.12	74.00	-23.88	peak
2	*	4823.966	31.79	8.19	39.98	54.00	-14.02	AVG



Report No.: TB-FCC141598
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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

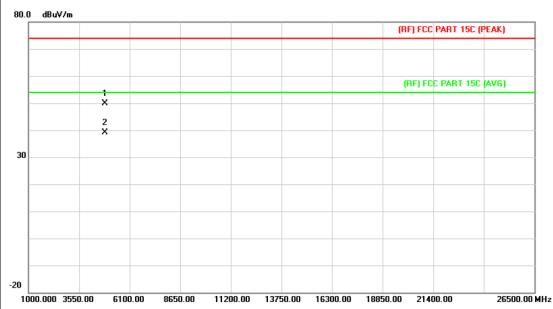


No	o. N	Иk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		•	4873.689	42.11	8.21	50.32	74.00	-23.68	peak
2	*	•	4873.689	30.94	8.21	39.15	54.00	-14.85	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

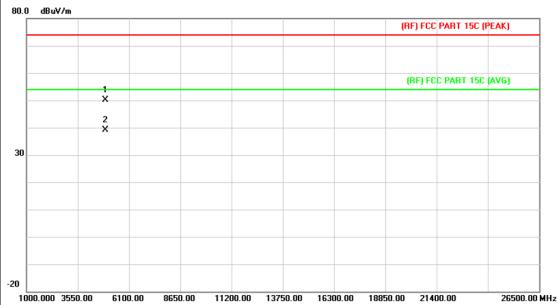


No	. Mk.	Freq.	_		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.954	41.77	8.21	49.98	74.00	-24.02	peak
2	*	4873.954	30.92	8.21	39.13	54.00	-14.87	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

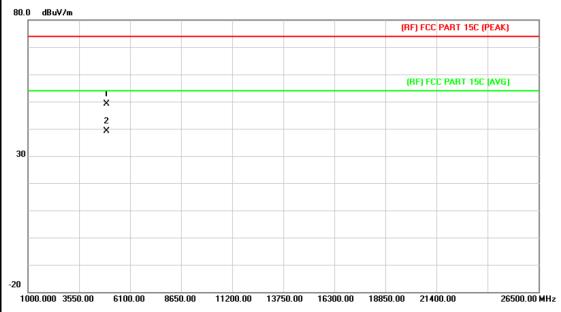


	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	I		4923.899	41.80	8.22	50.02	74.00	-23.98	peak
2	2	*	4923.899	30.88	8.22	39.10	54.00	-14.90	AVG

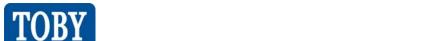


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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

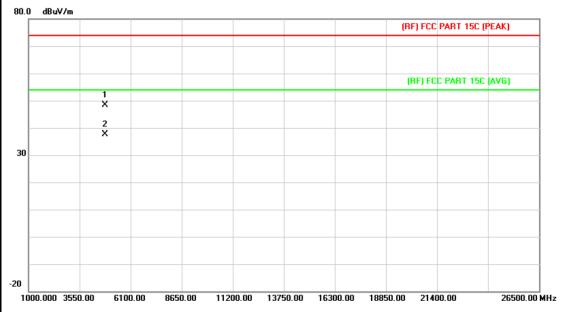


No.	Mk.	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.983	40.99	8.22	49.21	74.00	-24.79	peak
2	*	4923.983	30.93	8.22	39.15	54.00	-14.85	AVG



Report No.: TB-FCC141598
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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT20) Mode 2412N	ИНz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

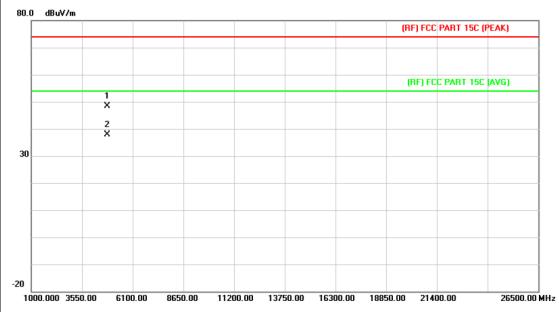


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.968	40.13	8.19	48.32	74.00	-25.68	peak
2	*	4823.968	29.49	8.19	37.68	54.00	-16.32	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX N(HT20) Mode 2412N	ИНz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

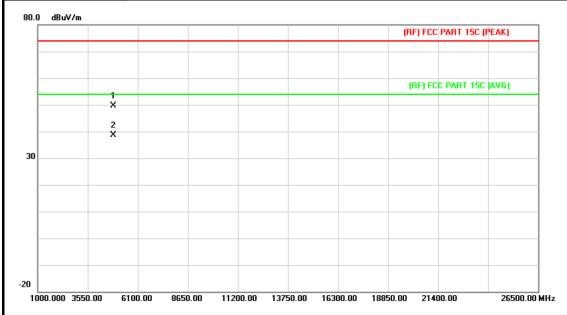


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.985	40.20	8.19	48.39	74.00	-25.61	peak
2	*	4823.985	29.69	8.19	37.88	54.00	-16.12	AVG



Report No.: TB-FCC141598
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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT20) Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

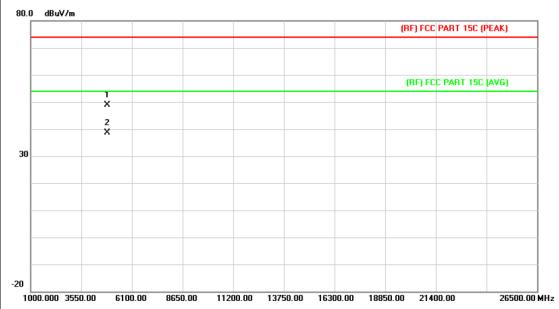


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.896	41.44	8.21	49.65	74.00	-24.35	peak
2	*	4873.896	30.41	8.21	38.62	54.00	-15.38	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX N(HT20) Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

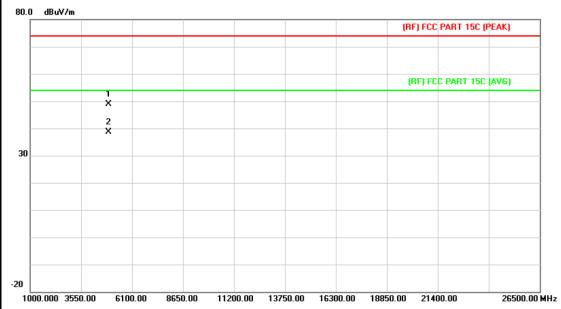


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.953	40.75	8.21	48.96	74.00	-25.04	peak
2	*	4873.953	30.46	8.21	38.67	54.00	-15.33	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT20) Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

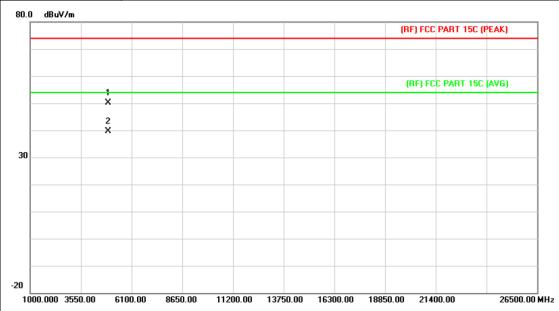


No	. Mk	. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.976	40.74	8.22	48.96	74.00	-25.04	peak
2	*	4923.976	30.35	8.22	38.57	54.00	-15.43	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX N(HT20) Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					



No	. Mk	. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.948	41.80	8.22	50.02	74.00	-23.98	peak
2	*	4923.948	31.29	8.22	39.51	54.00	-14.49	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT40) Mode 2422N	ИНz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

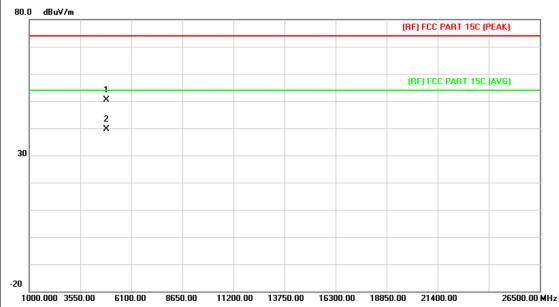


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4843.986	41.45	8.20	49.65	74.00	-24.35	peak
2	*	4843.986	30.14	8.20	38.34	54.00	-15.66	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX N(HT40) Mode 2422N	ИHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.						

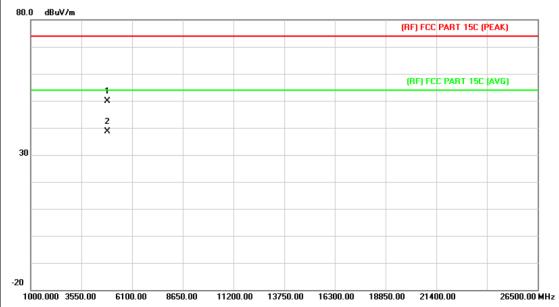


No	. Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4843.969	42.16	8.20	50.36	74.00	-23.64	peak
2	*	4843.969	31.44	8.20	39.64	54.00	-14.36	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT40) Mode 2437N	ИHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

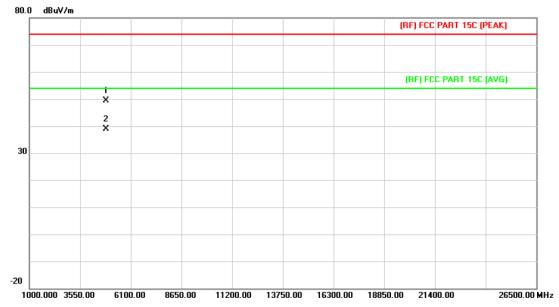


N	o. Ml	k. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.935	41.57	8.21	49.78	74.00	-24.22	peak
2	*	4873.935	30.43	8.21	38.64	54.00	-15.36	AVG



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EUT:	LED Pico Projector	Model:	ML131				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60 Hz						
Ant. Pol.	Vertical						
Test Mode:	TX N(HT40) Mode 2437	ИHz					
Remark:	No report for the emission which more than 10 dB below the						
	prescribed limit.						

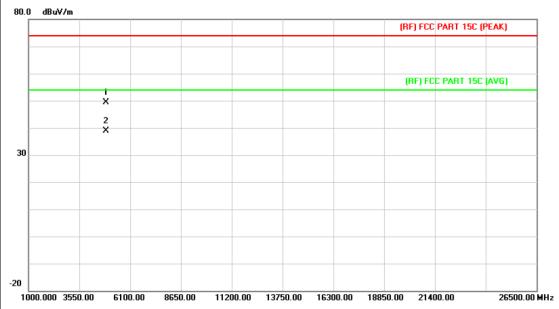


No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.887	41.14	8.21	49.35	74.00	-24.65	peak
2	*	4873.887	30.73	8.21	38.94	54.00	-15.06	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT40) Mode 2452N	ИHz				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

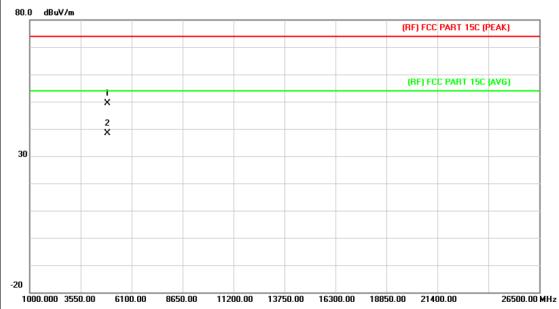


١	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1			4903.965	41.12	8.21	49.33	74.00	-24.67	peak
2		*	4903.965	30.55	8.21	38.76	54.00	-15.24	AVG



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EUT:	LED Pico Projector	Model:	ML131			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60 Hz					
Ant. Pol.	Vertical					
Test Mode:	TX N(HT40) Mode 2452N	ИНz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					



N	o. N	Λk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2	1903.995	41.15	8.21	49.36	74.00	-24.64	peak
2	*	2	1903.995	30.11	8.21	38.32	54.00	-15.68	AVG



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5. Restricted Bands Requirement

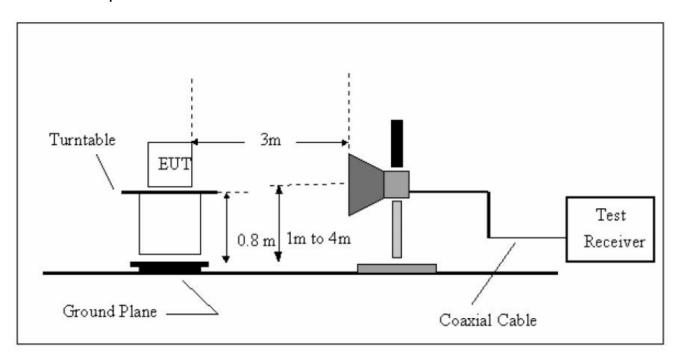
5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

5.1.2 Test Limit

Restricted Frequency	Class B (dBuV/m)(at 3 M)						
Band (MHz)	Peak	Average					
2310 ~2390	74	54					
2483.5 ~2500	74	54					

5.2 Test Setup



5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit



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Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

- (5) (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (7) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 08, 2014	Aug. 07, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 08, 2014	Aug. 07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

5.6 Test Data

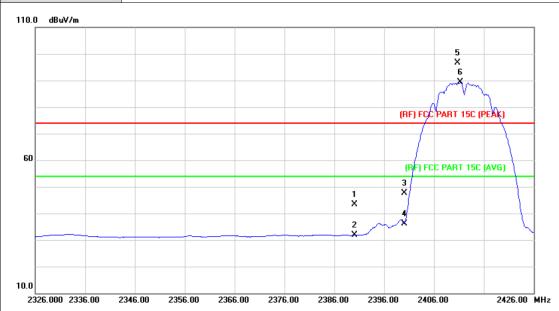
Please see the next page.



Report No.: TB-FCC141598
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(1) Radiation Test

EUT:	LED Pico Projector	Model:	ML131
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2412MHz		
Remark:	N/A		



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.66	0.77	43.43	74.00	-30.57	peak
2		2390.000	30.99	0.77	31.76	54.00	-22.24	AVG
3		2400.000	46.72	0.81	47.53	74.00	-26.47	peak
4		2400.000	35.38	0.81	36.19	54.00	-17.81	AVG
5	Χ	2410.700	95.79	0.86	96.65	Fundamental	Frequency	peak
6	*	2411.300	88.40	0.86	89.26	Fundamental	Frequency	AVG



EUT: LED Pico Projector Model: ML131 Temperature: **Relative Humidity:** 25 ℃ 55% **Test Voltage:** AC 120V/60 Hz Ant. Pol. Vertical **Test Mode:** TX B Mode 2412MHz N/A Remark: 110.0 dBuV/m (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) X 3 1 X 10.0 2326.000 2336.00 2346.00 2356.00 2366.00 2376.00 2386.00 2396.00 2406.00 2426.00 MHz Reading Correct Measure-No. Mk. Limit Over Freq. Level Factor ment MHz dBuV dBuV/m dBuV/m dΒ Detector dB/m 41.92 42.69 74.00 1 2390.000 0.77 -31.31 peak 2 30.46 0.77 31.23 54.00 -22.77AVG 2390.000 3 2400.000 45.45 0.81 46.26 74.00 -27.74 peak 4 2400.000 33.28 0.81 34.09 54.00 -19.91 AVG 5 2410.700 91.78 0.86 92.64 Χ peak **Fundamental Frequency** 6 2411.300 84.36 AVG 83.50 0.86 **Fundamental Frequency Emission Level= Read Level+ Correct Factor**



Page: 47 of 85

EUT	:		LED	Pico F	Project	or	M	odel:			M	1L131		
Tem	peratui	re:	25 °C	C			Re	elativ	e Hu	midity:	5	5%		
Test	t Voltag	e:	AC 1	20V/6	0 Hz	,								
Ant.	Pol.		Horiz	ontal										
Test	t Mode:		TX B	Mode	e 2462	MHz								
Ren	nark:		N/A											
110.0) dBuV/m													,
60		2 1 X			3 X							PART 15C (PE		
10.0 24	146.000 24 5	6.00 2	466.00	2476.0	0 2486	6.00 24 9	6.00	2506	S.00	2516.00	2526	.00	2546.00	MHz
	lo. Mk	. Fre	eq.		iding vel	Corre		Mea m	sure ent	- Lim	nit	Over		
		MH	łz	dB	u∨	dB/m		dBı	uV/m	dBu	V/m	dB	Detec	tor
1	*	2462.	700	90	.68	1.08		91	.76	Funda	mental	Frequency	AV	G
2	Х	2463.	400	96	.90	1.08		97	7.98	Funda	mental	Frequency	pea	ık
3		2483.	500	42	.79	1.17		43	3.96	74	.00	-30.04	pea	ık
4		2483.	500	30	.33	1.17		31	.50	54	.00	-22.50	AV	G
—														



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EUT:			LED	Pico	Projec	ctor	Model:					ML131		
Temp	eratui	re:	25 °C	C			Re	elativ	e Hur	nidity:	5	5%		
Test \	Voltag	e:	AC 1	20V/	60 Hz		•							
Ant. F	Pol.		Verti	cal										
Test I	Mode:		TX B	Mod	le 246	2MHz								
Rema	ark:		N/A											
110.0	dBuV/m													
		2 X 1	3											
		, my	~											
	1	√	-							(RF) FCC F	PART 15C (PE	AK)	
	-/													1
60														
\vdash	-			+						(R	F) FCC	PART 15C (A)	/G)	-
					X 3									
	\mathcal{J}				4									
					×									
10.0	S.000 245	6 NN 2	466.00	2476.0	NN 24	86.00 249	96.00	250	5 00 3	2516.00	2526.	nn	2546.00	MH2
	2.000 2.40	0.00 2									2020.		2370.00	
No	o. Mk.	Fre	eq.		ading evel	Corre Fact			asure ent	Lim	nit	Over		
		MH	Ηz	dl	BuV	dB/m		dB	uV/m	dBu	V/m	dB	Detec	ctor
1	*	2462	.700	88	3.18	1.08		89	9.26	Fundar	nental	Frequency	AV	'G
2	Χ	2463.	.400	94	1.59	1.08	}	9	5.67	Fundar	nental	Frequency	pea	ak
3		2483	.500	42	2.79	1.17	,	43	3.96	74	.00	-30.04	- pea	ak
4		2483	.500	30	0.33	1.17	,	3	1.50	54	.00	-22.50) AV	'G

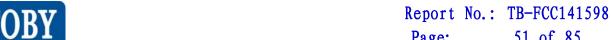


EUT: LED Pico Projector Model: ML131 Temperature: 25 ℃ **Relative Humidity:** 55% **Test Voltage:** AC 120V/60 Hz Ant. Pol. Horizontal **Test Mode:** TX G Mode 2412MHz N/A Remark: 110.0 dBuV/m (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) X 2329.000 2339.00 2349.00 2359.00 2379.00 2389.00 2399.00 2429.00 MHz Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment dBuV dΒ MHz dBuV/m dBuV/m Detector dB/m 1 2390.000 48.88 0.77 49.65 74.00 -24.35 peak 2 2390.000 35.35 0.77 36.12 54.00 -17.88 AVG 3 2400.000 56.74 57.55 74.00 -16.45 0.81 peak 4 2400.000 38.96 0.81 39.77 54.00 -14.23 AVG 5 2405.200 83.17 0.84 84.01 AVG Fundamental Frequency 6 Х 2413.600 93.26 0.86 94.12 peak **Fundamental Frequency**

T	R-I	₹F-	074	1-1	۸



EUT: LED Pico Projector Model: ML131 **Relative Humidity:** 55% Temperature: 25 ℃ **Test Voltage:** AC 120V/60 Hz Ant. Pol. Vertical **Test Mode:** TX G Mode 2412MHz N/A Remark: 110.0 dBuV/m 6 X (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) 10.0 2329.000 2339.00 2349.00 2359.00 2369.00 2379.00 2389.00 2399.00 2409.00 2429.00 MHz Correct Reading Measure-Limit Over No. Mk. Freq. Level Factor ment dBuV dBuV/m dΒ MHz dBuV/m Detector dB/m 48.88 1 2390.000 0.77 49.65 -24.35 74.00 peak 2 2390.000 35.35 0.77 36.12 54.00 -17.88 AVG 3 2400.000 56.74 0.81 57.55 74.00 -16.45 peak 4 2400.000 38.96 0.81 39.77 54.00 -14.23 AVG 5 2405.200 83.17 84.01 AVG 0.84 **Fundamental Frequency** 93.26 94.12 6 Х 2413.600 0.86 peak Fundamental Frequency **Emission Level= Read Level+ Correct Factor**



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EUT:	LED Pice	o Project	or N	flodel:		ML131	
Temperature:	25 ℃		F	Relative Hum	idity:	55%	
Test Voltage:	AC 120\	//60 Hz					
Ant. Pol.	Horizont	al					
Test Mode:	TX G Mo	de 2462	MHz				
Remark:	N/A						
110.0 dBuV/m							
	2 X						
	1 X						
	1				(RF) FC	C PART 15C (PEAK)
60	-				(BE) E	CC PART 15C (AVG	1
			3		(,		,
			3 K				
		-					
10.0							
	2463.00 247	3.00 2483	2493.00	2503.00 25	13.00 25	23.00 2	543.00 MHz
-	Re	eading	Correct	Measure-			
No. Mk. Fre		evel.	Factor	ment	Limit	Over	
MI	Hz (dBu∀	dB/m	dBuV/m	dBuV/	m dB	Detector
1 * 2464.	800 8	3.32	1.09	84.41	Fundame	ental Frequency	AVG
2 X 2469.	.000 9	1.02	1.11	92.13	Fundame	ental Frequency	peak
3 2483.	.500 4	3.51	1.17	44.68	74.0	0 -29.32	peak
4 2483.	.500 3	2.69	1.17	33.86	54.0	0 -20.14	AVG



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EUT	T: LED Pico Projector								odel:			M	IL131		
	peratu	re:	25 °		· •						midity:		5%		
	· · Voltag		AC 1	20V	/60 H	Z					<u> </u>				
Ant.	Pol.		Verti	cal											
Test	Mode		TX	Э Мо	de 24	62N	1Hz								
Rem	ark:		N/A												
110.0) dBu∀/m	1													
		1													1
		1 X 2													-
		X.	~	\neg							(RF)	FCC P	ART 15C (PI	FAKI	-
														,	-
60															
		 		-							(RF) FCC	PART 15C (AVG)	-
				1		3 X									
	~					4									
						-		-				_			-
															-
10.0 24	143.000 24	53.00 2	2463.00	2473	3.00	2483.0	0 2493	3.00	2503	3.00	2513.00	2523.0	00	2543.00	_ MHz
N	o. Mk	. Fre	-n		ading evel	9 (Correc Facto			ısure ent	- Limi	it	Over		
	O. IVIIX.	M-	•		BuV			''		uV/m	dBu\		dB	Dete	etor
_							dB/m				ubus	//111	ub.		
1	Х	2455.			9.62		1.05).67	Fundame	ental F	Frequency		ak
2	*	2458.	700	8	1.29		1.06		82	2.35	Fundame	ental F	Frequency	A۱	/G
3	_	2483.	500	44	4.66		1.17		45	.83	74.0	00	-28.1	7 pe	ak
4		2483.	500	3	1.52		1.17		32	2.69	54.0	00	-21.3	1 A\	/G



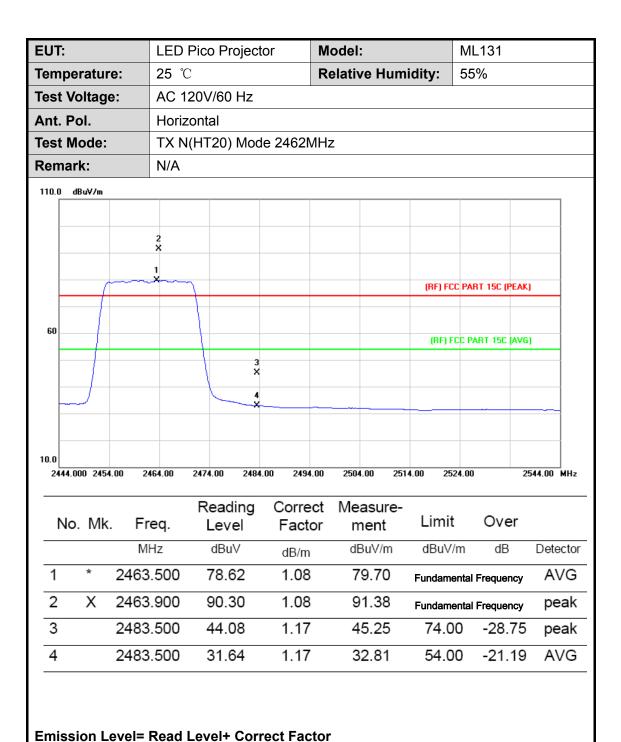
EUT: LED Pico Projector Model: ML131 **Relative Humidity:** Temperature: 25 ℃ 55% **Test Voltage:** AC 120V/60 Hz Ant. Pol. Horizontal **Test Mode:** TX N(HT20) Mode 2412MHz N/A Remark: 110.0 dBuV/m 5 X (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) 10.0 2329.000 2339.00 2349.00 2379.00 2389.00 2409.00 2429.00 MHz Reading Correct Measure-Over No. Mk. Limit Freq. Level Factor ment dBuV MHz dBuV/m dBuV/m dΒ Detector dB/m 1 2390.000 46.00 0.77 46.77 74.00 -27.23 peak 2 2390.000 32.38 0.77 33.15 54.00 -20.85 AVG 3 2400.000 50.05 0.81 50.86 74.00 -23.14 peak 4 2400.000 37.82 38.63 54.00 -15.37 AVG 0.81 90.74 5 Χ 2408.600 0.85 91.59 peak Fundamental Frequency 6 2408.800 81.81 0.85 82.66 AVG **Fundamental Frequency Emission Level= Read Level+ Correct Factor**



EUT: LED Pico Projector Model: ML131 25 ℃ **Relative Humidity:** 55% Temperature: **Test Voltage:** AC 120V/60 Hz Ant. Pol. Vertical **Test Mode:** TX N(HT20) Mode 2412MHz N/A Remark: 110.0 dBuV/m X 6 5 (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) × 10.0 2329.000 2339.00 2349.00 2359.00 2369.00 2379.00 2389.00 2399.00 2409.00 2429.00 MHz Reading Correct Measure-No. Mk. Limit Over Freq. Level Factor ment MHz dBu∀ dBuV/m dBuV/m dΒ Detector dB/m 1 2390.000 48.99 0.77 49.76 74.00 -24.24peak 2 2390.000 34.56 0.77 35.33 54.00 -18.67 AVG 3 50.30 -23.70 2400.000 49.49 0.81 74.00 peak 4 2400.000 37.73 0.81 38.54 54.00 -15.46 AVG 5 2415.200 80.52 0.88 81.40 AVG **Fundamental Frequency** 6 2415.400 89.74 0.88 90.62 Χ peak **Fundamental Frequency Emission Level= Read Level+ Correct Factor**



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EUT:		LED	Pico Pro	jector	N	/lodel:			ML131		
Temperatu	re:	25 °C			F	Relativ	e Hum	idity:	55%	6	
Test Voltag	e:	AC 1	20V/60	Hz							
Ant. Pol.		Vertic	cal								
Test Mode:		TX N	(HT20)	Mode	2462MF	łz					
Remark:		N/A									
110.0 dBuV/m											
	2 X										
	1										
/			} 					(RF) FO	C PAR	T 15C (PEAK)	
60								(RF) I	CC PA	RT 15C (AVG	
			-	3 X							
			-								
				4 ×							
10.0											
2444.000 245	4.00 24	64.00	2474.00	2484.00	2494.00	2504.	.00 25	14.00 25	24.00	2!	544.00 MHz
			Readir	na (Correct	Mea	asure-				
No. Mk	. Fre	q.	Leve	_	Factor	m	ent	Limit		Over	
	MH	Z	dBu∀	,	dB/m	dBı	uV/m	dBuV/	m	dB	Detector
1 *	2454.	000	77.50)	1.04	78	3.54	Fundame	ental F	requency	AVG
2 X	2454.	700	88.93	3	1.05	89	9.98	Fundame	ntal F	equency	peak
3	2483.	500	43.67	7	1.17	44	1.84	74.0	0	-29.16	peak
Ŭ											



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EU1	:		LED	Pico Proje	ctor	Model:		ML131						
Tem	peratu	re:	25 °	C		Relative I	lumidity:	lity: 55%						
Tes [°]	t Voltag	je:	AC 1	20V/60 Hz	<u>.</u>									
۱nt	Pol.		Horiz	zontal										
Tes:	t Mode:		TXN	I(HT40) Mo	ode 2422N	1Hz								
Ren	nark:		N/A											
110.0) dBuV/m													
								6 X						
							5							
							(FLF) F	CC PART 15C (PEA)	K)					
60						3	(RF)	FCC PART 15C (AVI	6)					
					1 X	X								
					2	4			\perp					
		_			X									
10.0														
23	47.000 235	7.00 2	367.00	2377.00 2	387.00 2397.	.00 2407.00	2417.00 2	427.00	2447.00 MH					
				Reading	Correc	t Measu	ıre-							
١	lo. Mk	. Fre	eq.	Level	Facto		1 2 24	Over						
		MH	Ηz	dBuV	dB/m	dBuV/	m dBuV	/m dB	Detector					
1		2390.	.000	46.18	0.77	46.9	5 74.0	0 -27.05	peak					
2		2390.	.000	35.55	0.77	36.3	2 54.0	0 -17.68	AVG					
3		2400	.000	50.41	0.81	51.2	2 74.0	0 -22.78	peak					
4		2400	.000	36.80	0.81	37.6	1 54.0	0 -16.39	AVG					
	*	2424	.300	79.47	0.93	80.4	0 Fundam	nental Frequency	AVG					
5						92.6			peak					



EUT: LED Pico Projector Model: ML131 25 ℃ **Relative Humidity:** 55% Temperature: **Test Voltage:** AC 120V/60 Hz Ant. Pol. Vertical **Test Mode:** TX N(HT40) Mode 2422MHz N/A Remark: 110.0 dBuV/m (RE) FCC PART 150 (PEAK) 60 (RF) FCC PART 15C (AVG) 1 X 3 3 2347.000 2357.00 2367.00 2377.00 2387.00 2397.00 2407.00 2417.00 2427.00 2447.00 MHz Correct Measure-Reading Limit Over No. Mk. Freq. Level Factor ment MHz dBuV dBuV/m dBuV/m dΒ Detector dB/m 1 46.26 0.77 47.03 2390.000 74.00 -26.97 peak 2 32.18 AVG 2390.000 0.77 32.95 54.00 -21.05 3 44.35 -28.84 2400.000 0.81 45.16 74.00 peak 4 34.87 35.68 -18.32AVG 2400.000 0.81 54.00 5 2425.100 90.32 0.93 91.25 Χ peak **Fundamental Frequency** 6 2425.500 77.66 0.93 78.59 AVG **Fundamental Frequency Emission Level= Read Level+ Correct Factor**

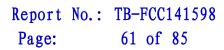


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EUT:	LED Pic	o Project	or	Model:			ML131	
Temperature:	25 ℃			Relative	e Hum	idity:	55%	
Test Voltage:	AC 120	V/60 Hz						
Ant. Pol.	Horizon	tal						
Test Mode:	TX N(H	T40) Mod	e 2452N	ИHz				
Remark:	N/A							
110.0 dBuV/m								
		2 X						
	1							
	×					(RF) FC	C PART 15C (PEA	AK)
60						(BE) E	CC PART 15C (A)	/G)
				3 X		,.		
				4				
				×				
10.0								
2427.000 2437.00	2447.00 24	57.00 246	7.00 247	7.00 2487	.00 24	97.00 25	07.00	2527.00 MHz
No. Mk. F		eading Level	Correc		sure-	Limit	Over	
	ЛНz	dBuV	dB/m	dΒι	ıV/m	dBuV/m	n dB	Detector
1 * 245	3.900	77.93	1.04	78	.97	Fundament	al Frequency	AVG
2 X 2460	0.900	91.75	1.06	92	.81	Fundament	al Frequency	peak
3 248	3.500	46.10	1.17	47	.27	74.00	-26.73	peak
4 2483	3.500	34.57	1.17	35	.74	54.00	-18.26	AVG



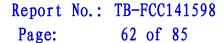
Model: EUT: LED Pico Projector ML131 Temperature: **25** ℃ **Relative Humidity:** 55% **Test Voltage:** AC 120V/60 Hz Ant. Pol. Vertical **Test Mode:** TX N(HT40) Mode 2452MHz Remark: N/A 110.0 dBuV/m (RF) FCC PART 15C (PEAK) 60 (RF) FCC PART 15C (AVG) X 2427.000 2437.00 2447.00 2457.00 2477.00 2487.00 2497.00 2527.00 MHz Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment MHz dBuV dΒ Detector dBuV/m dBuV/m dB/m 2458.300 75.96 77.02 AVG 1 1.06 **Fundamental Frequency** 2 2458.700 89.15 1.06 90.21 Χ peak Fundamental Frequency 3 45.17 2483.500 44.00 1.17 74.00 -28.83 peak 4 2483.500 32.33 1.17 33.50 54.00 -20.50 AVG





(2) Conducted Test

cted Test	LED Pico	Projector	Model:		ML131
perature:	25 °C	1 10,000		Humidity:	55%
		2011-	Relative	numuity.	3370
Voltage:		AC 120V/60 Hz			
Mode:	TX B Mode 2412MHz / TX B Mode 2462MHz				
ark:	The EUT i	s programed	n continuo	usly transmi	tting mode
* Agile	nt				
Ref 15 dl	3m	Atten 25 dB		Mk	r4 2.35325 GHz -51.04 dBm
Peak Log					
10 dB/				,,	wymmy
Offst	Display Line			٨؍	· /\
1 dB	28.35 dBm				
DI -28.3				2 3	_
dBm —					
Center 2		#1 (17)	/ 000 I-II-	0	Span 100 MH:
#Res BW	100 KHZ		/ 300 kHz		36 ms (401 pts)
Marker	Trace Type			Amplitude	
1 2	(1) Freq (1) Freq	2.41050 GH 2.39000 GH	z -	8.349 dBm 52.85 dBm	
1		2.41050 GH 2.39000 GH 2.40000 GH	z z	8.349 dBm	
1 2 3 4 4 Agile Ref 15 di Peak	(1) Freq (1) Freq (1) Freq (1) Freq	2.41050 GH 2.39000 GH 2.40000 GH	z z	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	r1 2.46050 GHz -8.999 dBm
Agile Ref 15 di Peak Log	(1) Freq (1) Freq (1) Freq (1) Freq	2 41050 GH 2.39000 GH 2.40000 GH 2.40000 GH 2.35325 GH	z z	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 di Peak Log	(1) Freq (1) Freq (1) Freq (1) Freq	2 41050 GH 2.39000 GH 2.240000 GH 2.25325 GH	z z	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 di Peak Log 10 dB/ Offst 1	(1) Freq (1) Freq (1) Freq (1) Freq (1) Fred	2 41050 GH 2.39000 GH 2.240000 GH 2.25325 GH	z z	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 di Peak Log 10 dB/ Offst 1 dB Di	(1) Free (1)	2 41050 GH 2 39000 GH 2 40000 GH 2 235325 GH	z z	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 -29.0	(1) Free (1)	2 41050 GH 2 39000 GH 2 40000 GH 2 235325 GH	z - z - z - z - z - z - z - z - z - z -	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 di Peak Log 10 dB/ Offst 1 dB Di	(1) Free (1)	2 41050 GH 2 39000 GH 2 40000 GH 2 235325 GH	z - z - z - z - z - z - z - z - z - z -	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 dB DI -29.0 dBm	(1) Free (1)	2 41050 GH 2 39000 GH 2 40000 GH 2 235325 GH	z - z - z - z - z - z - z - z - z - z -	8. 349 dBm 52.85 dBm -52.5 dBm 51.04 dBm	-8.999 dBm
Ref 15 dl Peak Log 10 dB/ Offst I 1 - dB Di -29.0 dBm	(1) Free (1)	2 41050 GH 2 39000 GH 2 40000 GH 2 235325 GH	z - z - z - z - z - z - z - z - z - z -	8.349 dBm 52.85 dBm 52.5 dBm 51.04 dBm	
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 dB DI -29.0 dBm Center 2 #Res BW Marker 1	(1) Free (1)	2 41050 GH 2 39000 GH 2 240000 GH 2 235325 GH Atten 25 dB	z - z - z - z - z - z - z - z - z - z -	Sweep 10.3 Amplitude 8.999 dBm	-8.999 dBm
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 dB DI -29.0 dBm Center 2 #Res BW Marker	(1) Free (1) Free (1) Free (2) Free (2) Free (2) Free (2) Free (2) Free (2) Free (1) Free (1) Free (1) Free (1) Free (1) Free (1) Free (2)	#VBV #VBV 2.4050 GH 2.39000 GH 2.39000 GH 2.40000 GH 2.35325 GH 4.20000 GH 2.35325 GH 4.4000 GH 2.40000 H 2.40000 GH 2.40000 GH 2.40000 GH 2.40000 GH 2.40000 GH 2.40000 GH 2.4000 G	Z	Sweep 10.3	-8.999 dBm
Ref 15 dl Peak Log 10 dB/ Offst 1 -29.0 dBm Center 2 #Res BW Marker 1 2	(1) Free (1) Free (1) Free (2) Free (2) Free (2) Free (2) Free (2) Free (2) Free (2) Free (1) Free (1) Free (1) Free (1) Free (1) Free (2) Free (2) Free (2) Free (2) Free (3) Free (4)	#VBV #Atten 25 dB Atten 25 dB #VBV 2 48350 GF 2 2,48350 GF 2 2,48350 GF 2 2,50000 GF	Z	Sweep 10.3 Amplitude 8.5.7.2 dBm	-8.999 dBm
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 -29.0 dBm Center 2 #Res BW Marker 1 2 3	(1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq	#VBV #Atten 25 dB Atten 25 dB #VBV 2 48350 GF 2 2,48350 GF 2 2,48350 GF 2 2,50000 GF	Z	Sweep 10.3 Amplitude 8.999 dBm 51.99 dBm 51.99 dBm	-8.999 dBm
Agile Ref 15 dl Peak Log 10 dB/ Offst 1 -29.0 dBm Center 2. #Res BW Marker 1 2 3	(1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq (1) Freq	#VBV #Atten 25 dB Atten 25 dB #VBV 2 48350 GF 2 2,48350 GF 2 2,48350 GF 2 2,50000 GF	Z	Sweep 10.3 Amplitude 8.999 dBm 51.99 dBm 51.99 dBm	-8.999 dBm





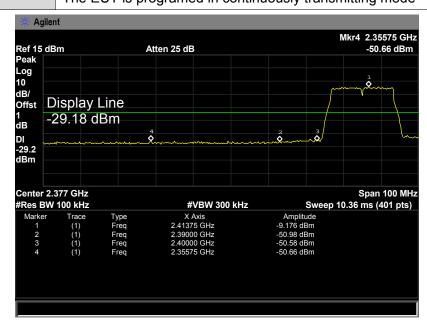
EUT: LED Pico Projector Model: ML131

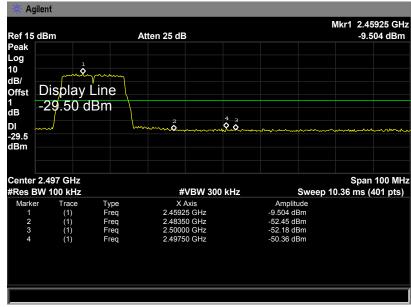
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: AC 120V/60 Hz

Test Mode: TX G Mode 2412MHz / TX G Mode 2462MHz

Remark: The EUT is programed in continuously transmitting mode









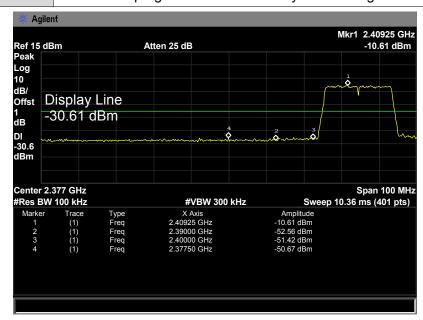
EUT: LED Pico Projector Model: ML131

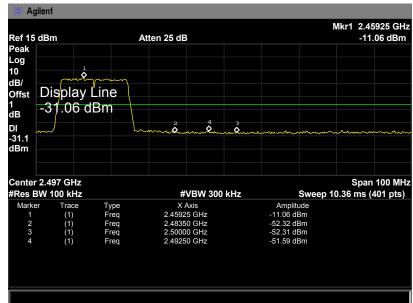
Temperature: 25 ℃ Relative Humidity: 55%

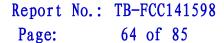
Test Voltage: AC 120V/60 Hz

Test Mode: TX N(HT20) Mode 2412MHz / TX N(HT20) Mode 2462MHz

Remark: The EUT is programed in continuously transmitting mode









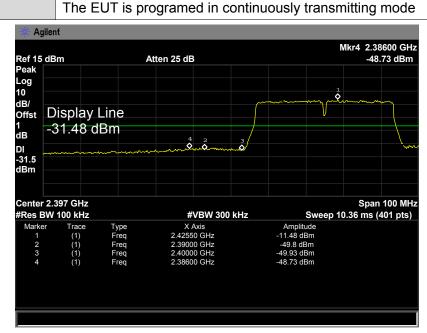
EUT: LED Pico Projector Model: ML131

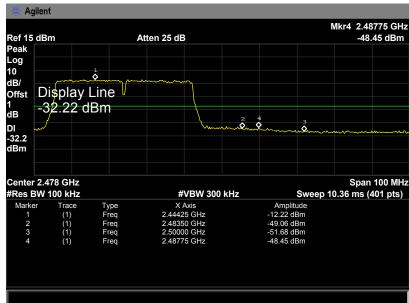
Temperature: 25 °C Relative Humidity: 55%

Test Voltage: AC 120V/60 Hz

Test Mode: TX N(HT40) Mode 2422MHz / TX N(HT40) Mode 2452MHz

Remark: The EUT is programed in continuously transmitting mode







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6. Bandwidth Test

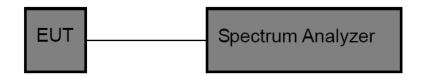
6.1 Test Standard and Limit

6.1.1 Test Standard FCC Part 15.247 (a)(2)

6.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210				
Test Item Limit Frequency Range(MHz				
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5		

6.2 Test Setup



6.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

6.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, LED Pico Projectordle and high channel for the test.

6.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015



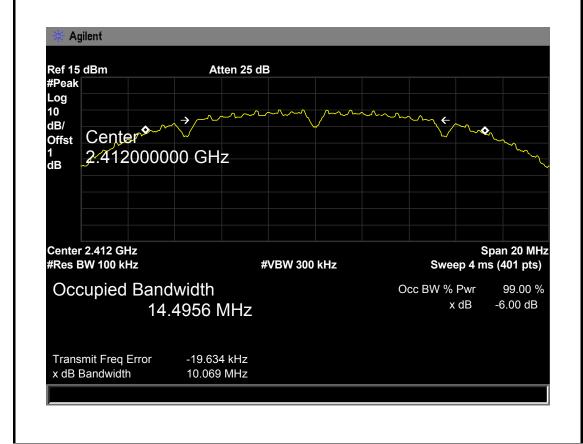


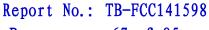
6.6 Test Data

EUT:	LED Pico Projector	Model:	ML131	
Temperature:	25 ℃	Relative Humidity:	55%	
Test Voltage:	AC 120V/60 Hz			
Test Mode:	TX 802.11B Mode			
Channel frequence	Channel frequency 6dB Bandwidth		Limit	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	10.069	14.4956		
2437 10.062		14.4896	>=0.5	
2462	10.057	14.4835]	
902 11P Modo				

802.11B Mode

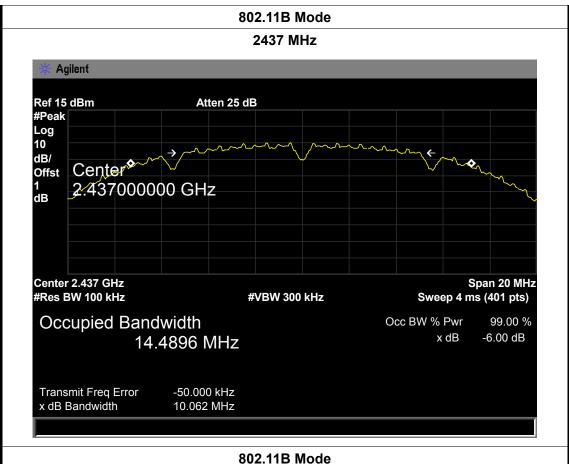
2412 MHz







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2462 MHz Agilent Ref 15 dBm #Peak Atten 25 dB Log 10 dB/ Center® Offst 1 dB 2.462000000 GHz Center 2.462 GHz Span 20 MHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 4 ms (401 pts) Occupied Bandwidth Occ BW % Pwr 99.00 % -6.00 dB x dB 14.4835 MHz Transmit Freq Error -49.676 kHz x dB Bandwidth 10.057 MHz





EUT: LED Pico Projector Model: ML131

Temperature: 25 ℃ Relative Humidity: 55%

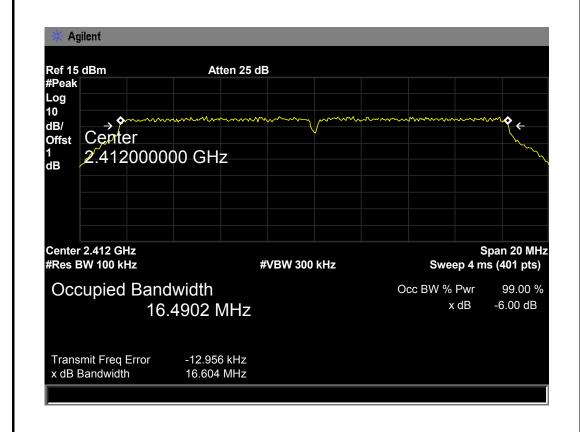
Test Voltage: AC 120V/60 Hz

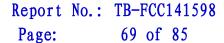
Test Mode: TX 802.11G Mode

rest mode.	TX 002.110 Wode				
Channel frequency	6dB Bandwidth	99% Bandwidth	Limit		
(MHz)	(MHz)	(MHz)	(MHz)		
2412	16.604	16.4902			
2437	16.569	16.4861	>=0.5		
2462	16.604	16.5428			

802.11G Mode

2412 MHz







#Res BW 100 kHz

Transmit Freq Error

x dB Bandwidth

Occupied Bandwidth

16.5428 MHz

-35.705 kHz

16.604 MHz

802.11G Mode 2437 MHz Agilent Ref 15 dBm Atten 25 dB #Peak Log 10 dB/ Center Offst 1 dB 2.437000000 GHz Center 2.437 GHz Span 20 MHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 4 ms (401 pts) Occupied Bandwidth Occ BW % Pwr 99.00 % -6.00 dB x dB 16.4861 MHz Transmit Freq Error x dB Bandwidth -18.513 kHz 16.569 MHz 802.11G Mode 2462 MHz Agilent Ref 15 dBm #Peak Atten 25 dB Log 10 dB/ Center Offst 1 dB 2.462000000 GHz Center 2.462 GHz Span 20 MHz

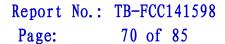
#VBW 300 kHz

Sweep 4 ms (401 pts)

99.00 % -6.00 dB

Occ BW % Pwr

x dB





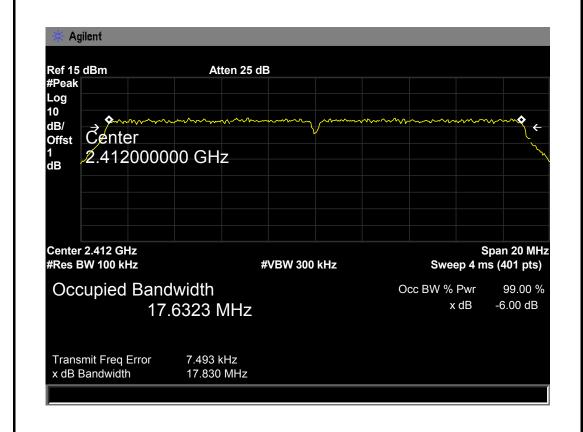
EUT:LED Pico ProjectorModel:ML131Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 Hz

Test Mode: TX 802.11N(HT20) Mode

Channel frequency	6dB Bandwidth	99% Bandwidth	Limit	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	17.830	17.6323		
2437	17.823	17.6232	>=0.5	
2462	17.843	17.6304		

802.11N(HT20) Mode

2412 MHz







Center 2.462 GHz

#Res BW 100 kHz

Transmit Freq Error

x dB Bandwidth

Occupied Bandwidth

17.6304 MHz

-7.699 kHz

17.843 MHz

802.11N(HT20) Mode 2437 MHz Agilent Ref 15 dBm Atten 25 dB #Peak Log 10 **Č**enter dB/ Offst 1 dB **2**.437000000 GHz Center 2.437 GHz Span 20 MHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 4 ms (401 pts) Occupied Bandwidth Occ BW % Pwr 99.00 % -6.00 dB x dB 17.6232 MHz Transmit Freq Error x dB Bandwidth 20.383 Hz 17.823 MHz 802.11N(HT20) Mode 2462 MHz Agilent Ref 15 dBm #Peak Atten 25 dB Log 10 dB/ **C**enter Offst 1 dB 2.462000000 GHz

#VBW 300 kHz

Span 20 MHz

99.00 % -6.00 dB

Sweep 4 ms (401 pts)

Occ BW % Pwr

x dB





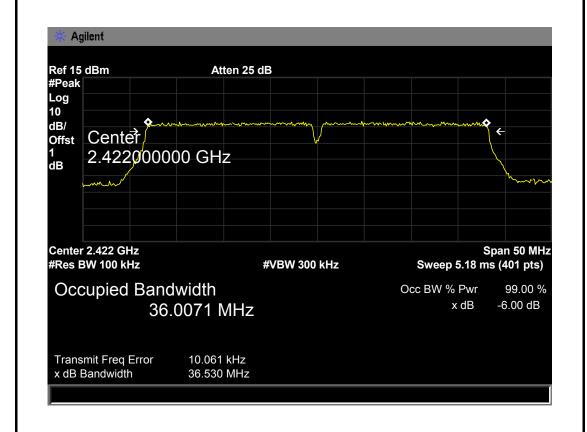
EUT:LED Pico ProjectorModel:ML131Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 Hz

Test Mode: TX 802.11N(HT40) Mode

(), 111					
Channel frequency	6dB Bandwidth	99% Bandwidth	Limit		
(MHz)	(MHz)	(MHz)	(MHz)		
2422	36.530	36.0071			
2437	36.525	36.0037	>=0.5		
2452	36.499	36.0071			

802.11N(HT40) Mode

2422 MHz





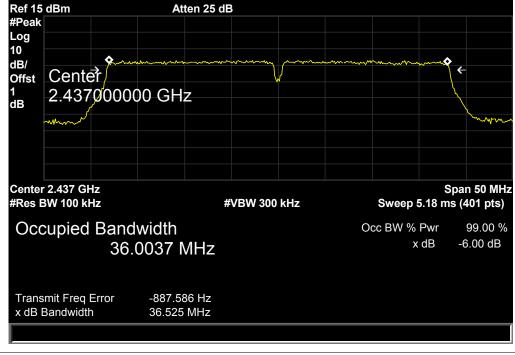


802.11N(HT40) Mode
2437 MHz

Agilent

Ref 15 dBm
Atten 25 dB

#Peak
Log
10



802.11N(HT40) Mode

2452 MHz Agilent Ref 15 dBm #Peak Atten 25 dB Log 10 dB/ **←** Center Offst 1 dB 2.452<mark>0</mark>00000 GHz Center 2.452 GHz Span 50 MHz #Res BW 100 kHz **#VBW 300 kHz** Sweep 5.18 ms (401 pts) Occupied Bandwidth Occ BW % Pwr 99.00 % -6.00 dB x dB 36.0071 MHz Transmit Freq Error -23.545 kHz x dB Bandwidth 36.499 MHz



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7. Peak Output Power Test

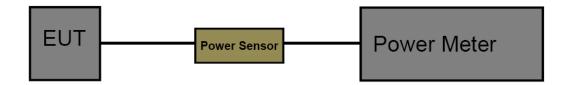
7.1 Test Standard and Limit

7.1.1 Test Standard FCC Part 15.247 (b)

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)/RSS-210			
Test Item Limit Frequency Range(MHz)			
Peak Output Power	1 Watt or 30 dBm	2400~2483.5	

7.2 Test Setup



7.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v03r02.

The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

7.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

7.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Power Meter	Anritsu	ML2495A	25406005	Aug. 08, 2014	Aug. 07, 2015
Power Sensor	Anritsu	ML2411B	25406005	Aug. 08, 2014	Aug. 07, 2015

7.6 Test Data



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EUT:	LED Pico Projector	Model:	ML131
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
	2412	9.03	
802.11b	2437	9.01	
	2462	8.96	
	2412	9.02	
802.11g	2437	9.04	
	2462	8.93	20
200 44	2412	9.00	30
802.11n	2437	9.05	
(HT20)	2462	9.06	
200 44	2422	8.97	
802.11n (⊔T40)	2437	8.99	
(HT40)	2452	8.96	



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8. Power Spectral Density Test

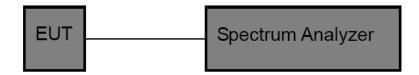
8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (e)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)			
Test Item Limit Frequency Range(MHz)			
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5	

8.2 Test Setup



8.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v03r02.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz(5) Set the VBW to: 10 kHz
- (6) Detector: peak (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

8.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, LED Pico Projectordle and high channel for the test.



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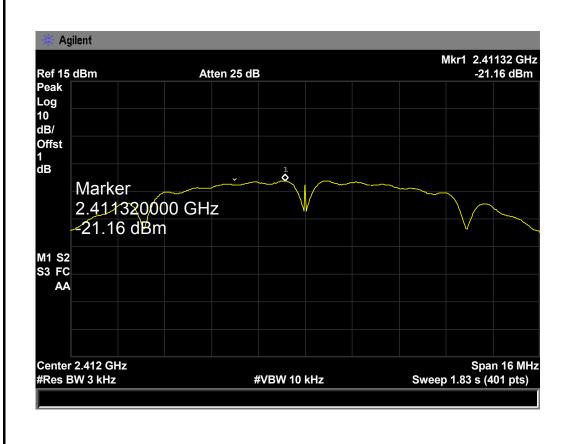
8.5 Test Equipment

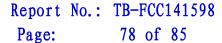
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum	Agilent		MY45106456	Mar. 20, 2014	Mar. 19, 2015
Analyzer	Aglient	E4407B	WIT40100400	Iviai. 20, 2014	Mai. 19, 2015

8.6 Test Data

EUT:	LED Pico Projector		Model:		ML131
Temperature:	25 ℃		Relative Humidity:		55%
Test Voltage:	AC 120V/	AC 120V/60 HZ			
Test Mode:	TX 802.11B Mode				
Channel Frequency	equency Power Density			Limit (dBm)	
(MHz)		(3 kHz/dBm)			
2412		-21.16			
2437	2437 -21.88		.88		8
2462		-22.75			
802.11B Mode					
2412 MHz					









AA

Center 2.462 GHz

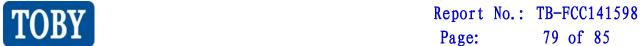
#Res BW 3 kHz

802.11B Mode 2437 MHz Agilent Mkr1 2.43776 GHz -21.88 dBm Ref 15 dBm Atten 25 dB Peak Log 10 dB/ Offst 1 dB Marker 2.437760000 GHz -21.88 dBm M1 S2 S3 FC AA Center 2.437 GHz Span 16 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 1.83 s (401 pts) 802.11B Mode 2462 MHz Agilent Mkr1 2.46124 GHz Ref 15 dBm -22.75 dBm Atten 25 dB Peak Log 10 dB/ Offst 1 dB 1 Marker 2.461240000 GHz -22.75 dBm M1 S2 S3 FC

#VBW 10 kHz

Span 16 MHz

Sweep 1.83 s (401 pts)

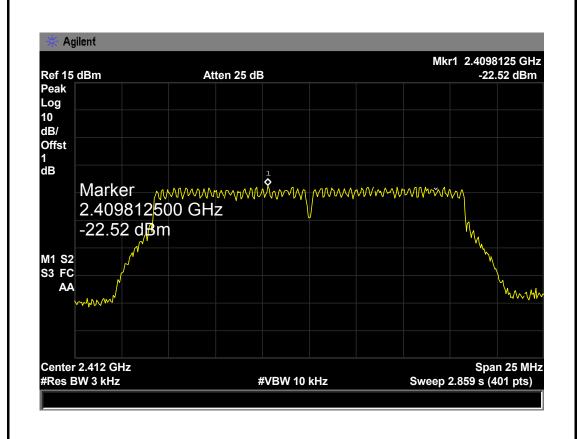


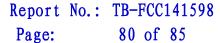
EUT:	LED Pico Projector	Model:	ML131
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		
Test Mode:	TX 802.11G Mode		

Channel Frequency	Power Density	Limit (dBm)
(MHz)	(3 kHz/dBm)	
2412	-22.52	
2437	-22.46	8
2462	-23.23	

802.11G Mode

2412 MHz







-23.23 dBm

M1 S2 S3 FC AA

Center 2.462 GHz

#Res BW 3 kHz

802.11G Mode 2437 MHz Agilent Mkr1 2.4348125 GHz -22.46 dBm Ref 15 dBm Atten 25 dB **Peak** Log 10 dB/ Offst 1 dB Marker www.www. 2.434812500 GHz -22.46 dBm M1 S2 S3 FC AA Center 2.437 GHz Span 25 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 2.859 s (401 pts) 802.11G Mode 2462 MHz Agilent Mkr1 2.4651250 GHz -23.23 dBm Ref 15 dBm Atten 25 dB Peak Log 10 dB/ Offst 1 dB Marker www.www. 2.465125<mark>000 GHz</mark>

#VBW 10 kHz

Span 25 MHz

Sweep 2.859 s (401 pts)



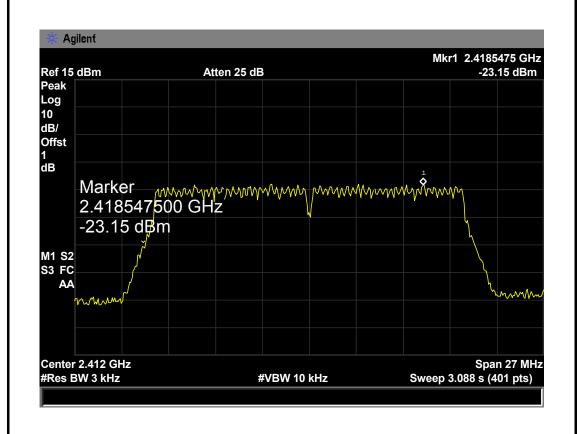
EUT:LED Pico ProjectorModel:ML131Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 HZ

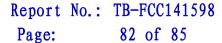
Test Mode: TX 802.11N(HT20) Mode

	·	ń.
Channel Frequency	Power Density	Limit (dBm)
(MHz)	(3 kHz/dBm)	
2412	-23.15	
2437	-22.84	8
2462	-23.10	
1		·-

802.11N(HT20) Mode

2412 MHz







Center 2.462 GHz

#Res BW 3 kHz

802.11N(HT20) Mode 2437 MHz Agilent Mkr1 2.4435475 GHz -22.84 dBm Ref 15 dBm Atten 25 dB **Peak** Log 10 dB/ Offst 1 dB -22.84 dBm M1 S2 S3 FC AA monous Center 2.437 GHz Span 27 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 3.088 s (401 pts) 802.11N(HT20) Mode 2462 MHz Agilent Mkr1 2.4642275 GHz Ref 15 dBm -23.1 dBm Atten 25 dB Peak Log 10 dB/ Offst 1 dB 2.464227500 GHz -23.1 dB/m M1 S2 S3 FC AA

#VBW 10 kHz

Span 27 MHz

Sweep 3.088 s (401 pts)



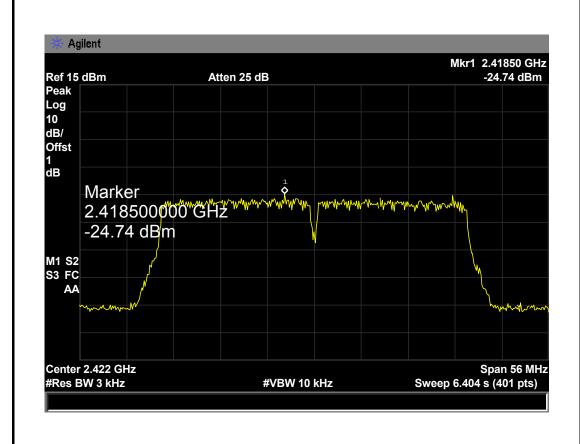
EUT:LED Pico ProjectorModel:ML131Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 HZ

Test Mode: TX 802.11N(HT40) Mode

Channel Frequency	Power Density	Limit (dBm)
(MHz)	(3 kHz/dBm)	
2422	-24.74	
2437	-24.85	8
2452	-25.08	

802.11N(HT40) Mode

2422 MHz







Center 2.452 GHz

#Res BW 3 kHz

802.11N(HT40) Mode 2437 MHz Agilent Mkr1 2.44484 GHz -24.85 dBm Ref 15 dBm Atten 25 dB **Peak** Log 10 dB/ Offst 1 dB Marker 2.444840000 GHz -24.85 dBm M1 S2 S3 FC AA Center 2.437 GHz Span 56 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 6.404 s (401 pts) 802.11N(HT40) Mode 2452 MHz Agilent Mkr1 2.44850 GHz Ref 15 dBm -25.08 dBm Atten 25 dB Peak Log 10 dB/ Offst 1 dB Marker 2.448500000 GHz -25.08 dBm M1 S2 S3 FC AA

#VBW 10 kHz

Span 56 MHz

Sweep 6.404 s (401 pts)



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9. Antenna Requirement

9.1 Standard Requirement

9.1.1 Standard FCC Part 15.203

9.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

9.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

9.3 Result

The EUT antenna is a FPC Antenna. It complies with the standard requirement.