



TPS92515-Q1 LED Buck Converter

TI reference design number: PMP20178 Rev A

Input: 9V to 16V

Output: 6V or 9V @ 1A

DC – DC EMI Test Results

Table of Contents

1	Test Description.....	3
2	Test Setup	3
2.1	Conducted Test Setup.....	3
2.2	Radiated Test Setup.....	4
3	External Filter	4
4	Conducted Emissions	5
4.1	Conducted Test Results	5
5	Radiated Emissions.....	12
5.1	Radiated Test Results	12

1 Test Description

PMP20487 is a hysteretic buck converter which drives LEDs at up to 1A from an input voltage of 9V to 16V. This design uses the TPS92515-Q1 buck LED driver set for a constant off-time of 1 μ s.

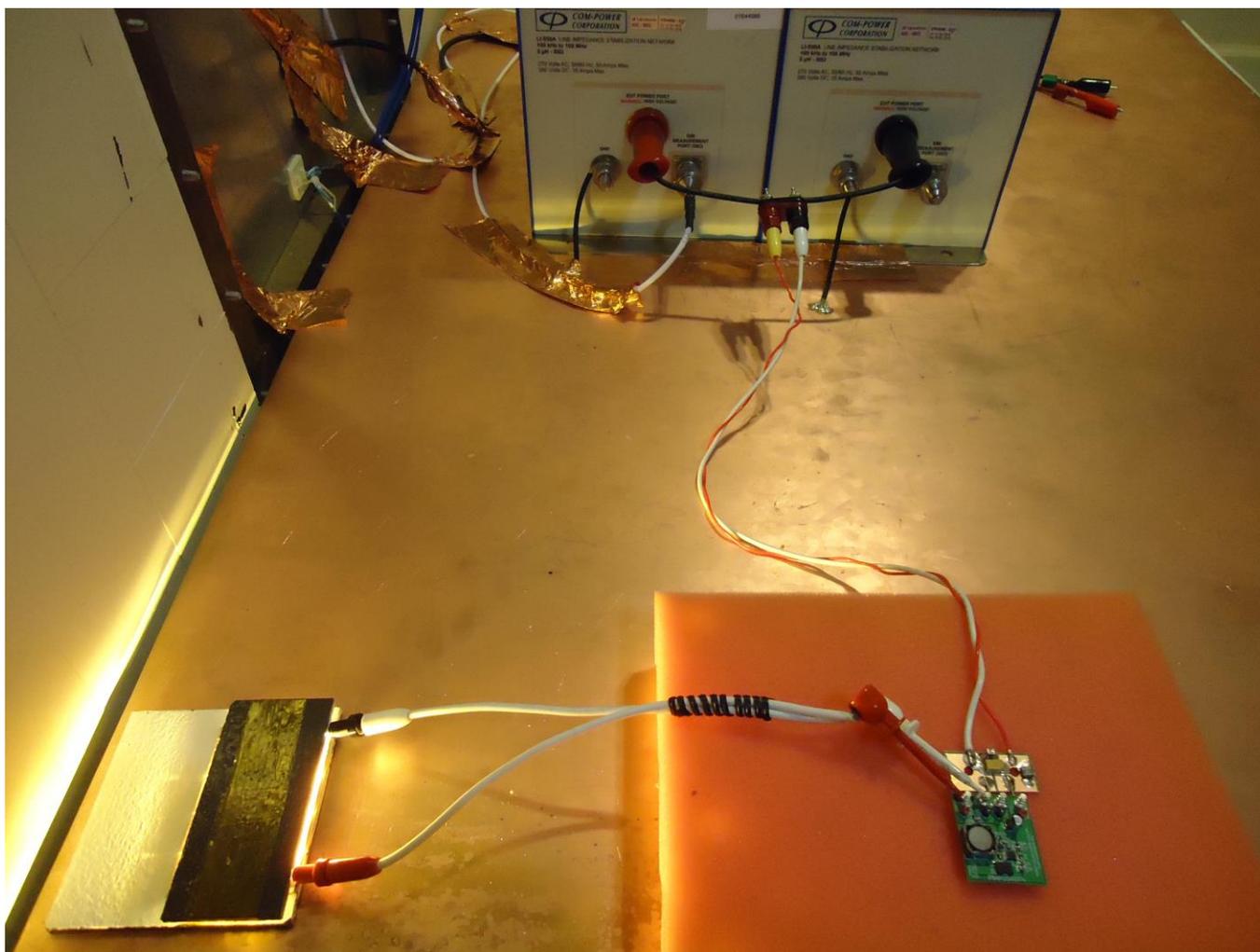
LED loads were CITILIGHT series 773F, three strings of 2 or 3 series LEDs with a 1 ohm ballast resistor in each string.

CISPR 25 limits were used for conducted tests. CISPR 22 limits were used for radiated tests.

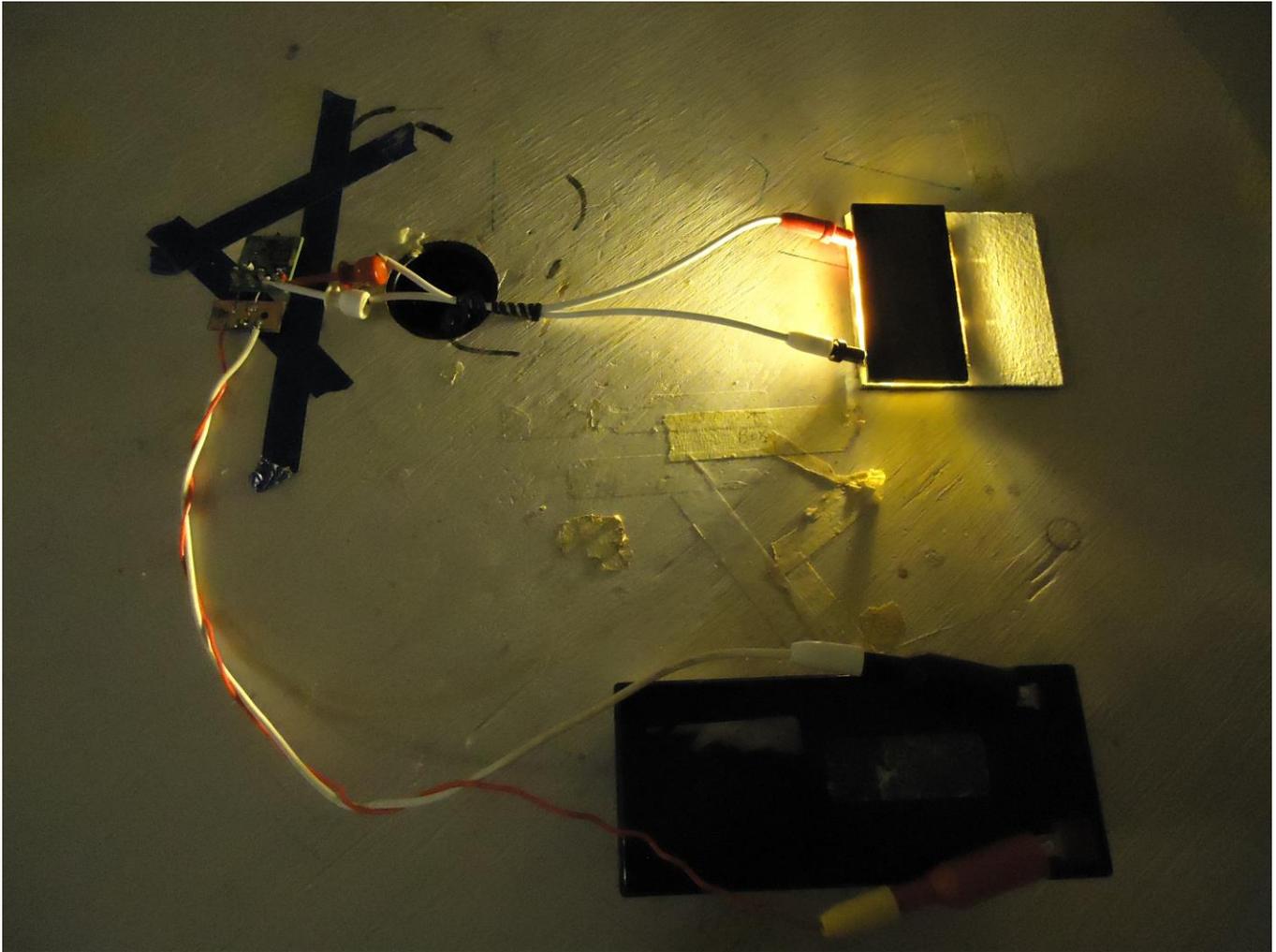
2 Test Setup

The photographs below show the PMP20487 EMI test setups.

2.1 Conducted Test Setup

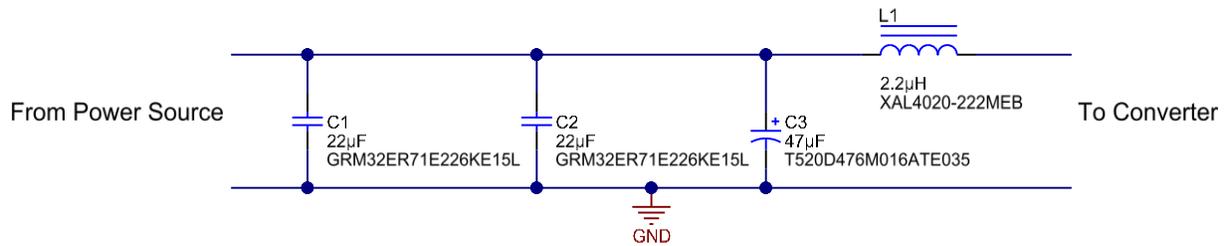


2.2 Radiated Test Setup



3 External Filter

An external filter was used to limit ripple current reflected back into the power source.

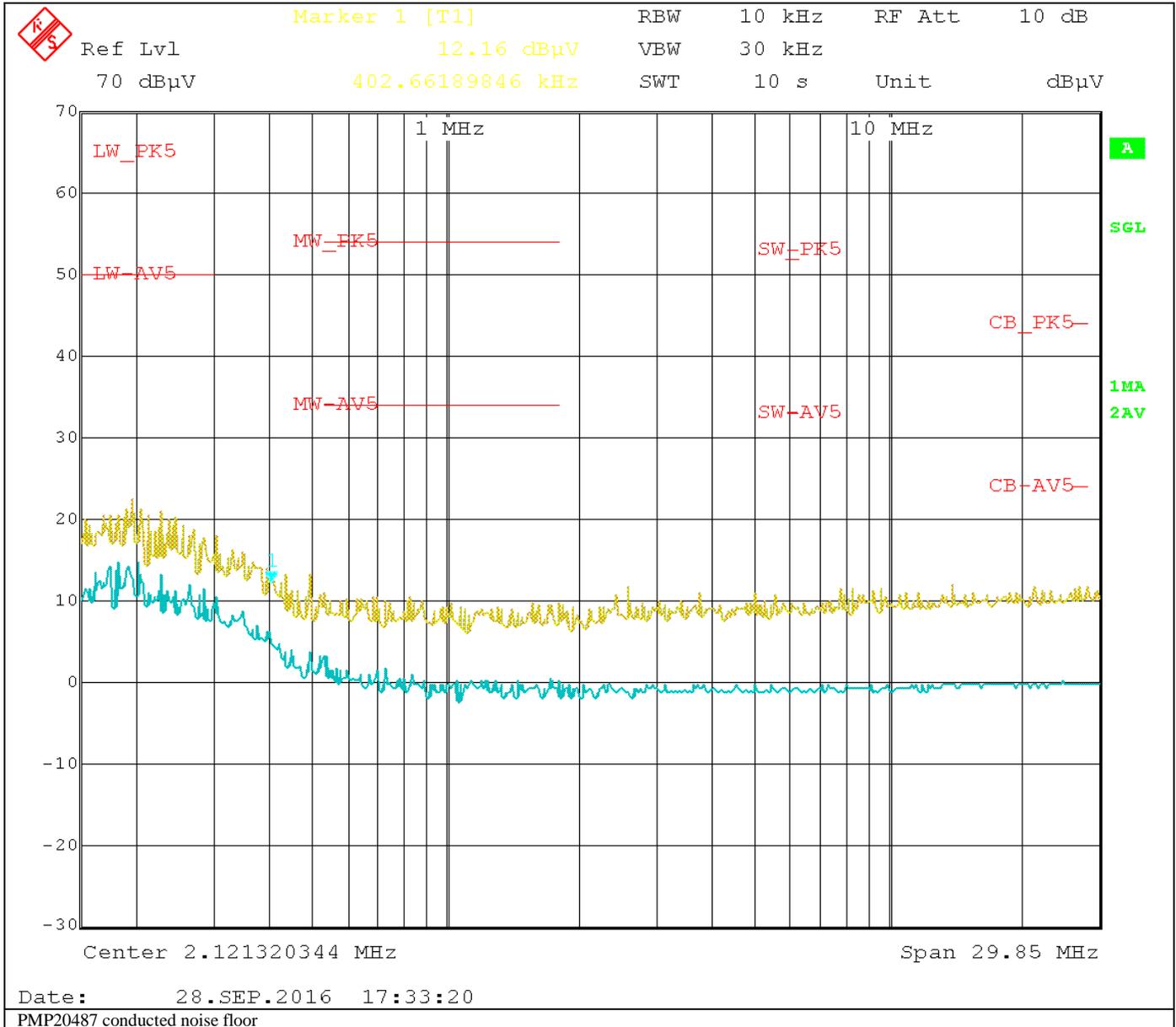


PMP20487 Rev A EMI Test Results

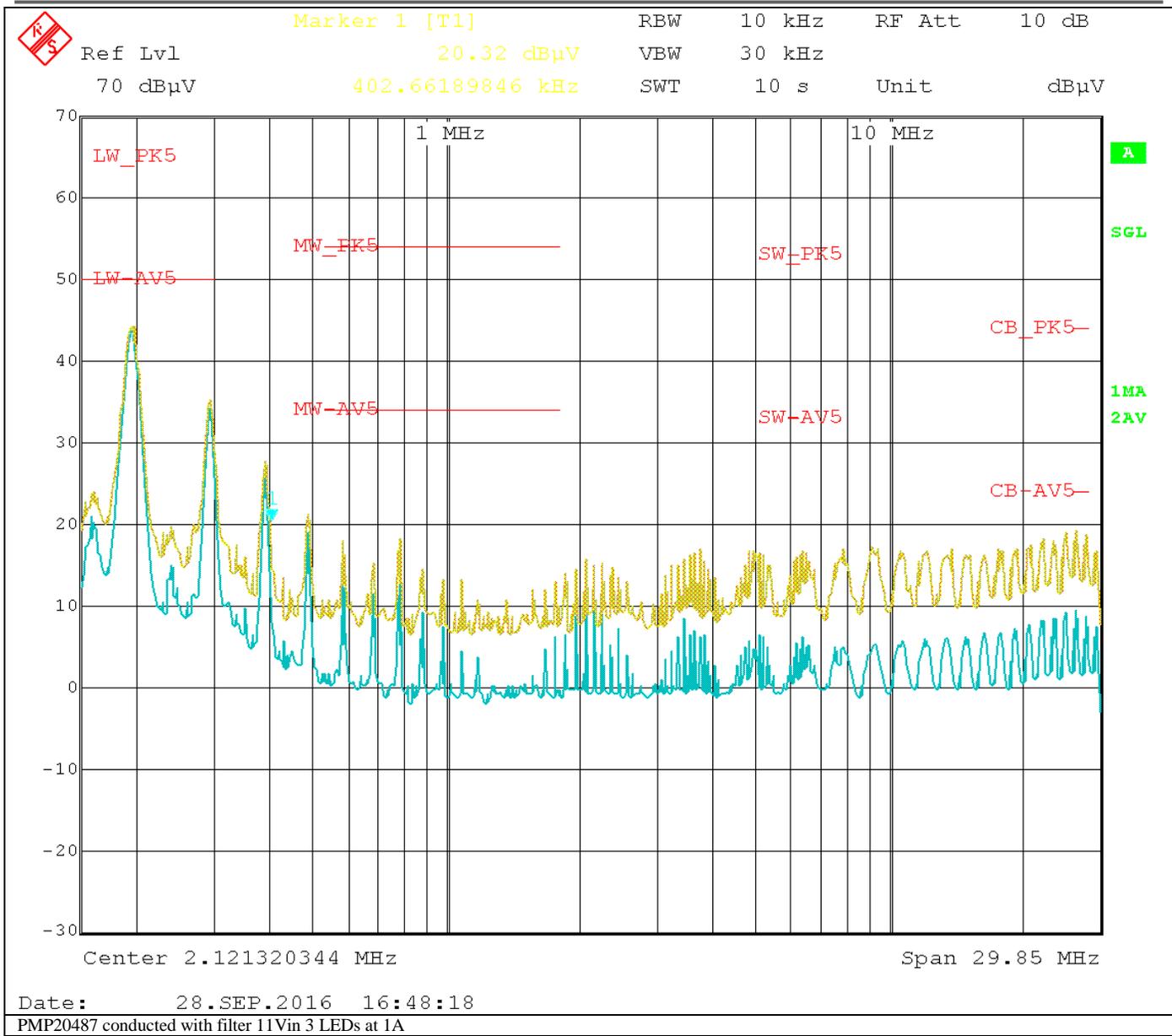
4 Conducted Emissions

4.1 Conducted Test Results

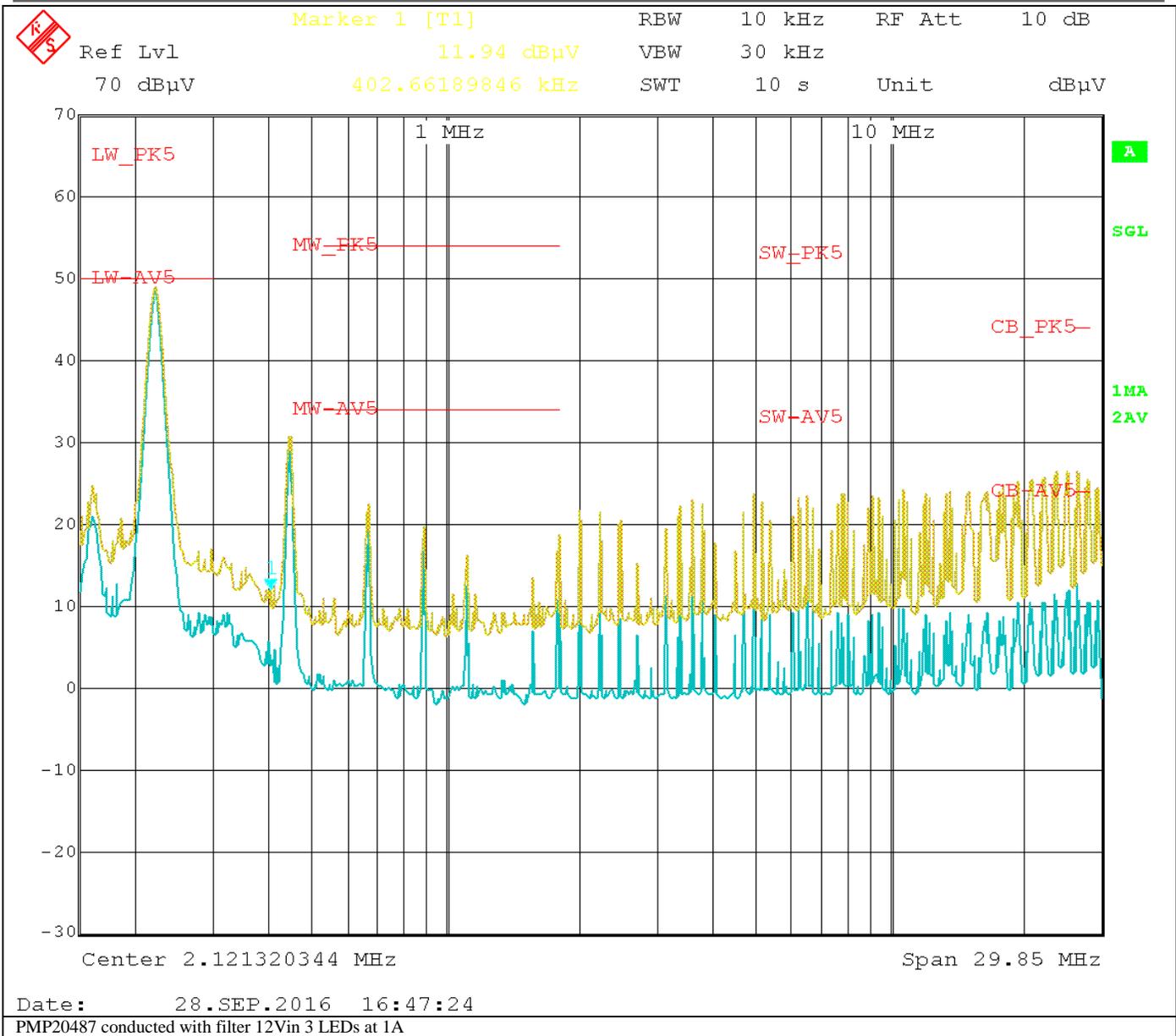
Tested with 3 LED load board (3S3P) at 1A and external filter.



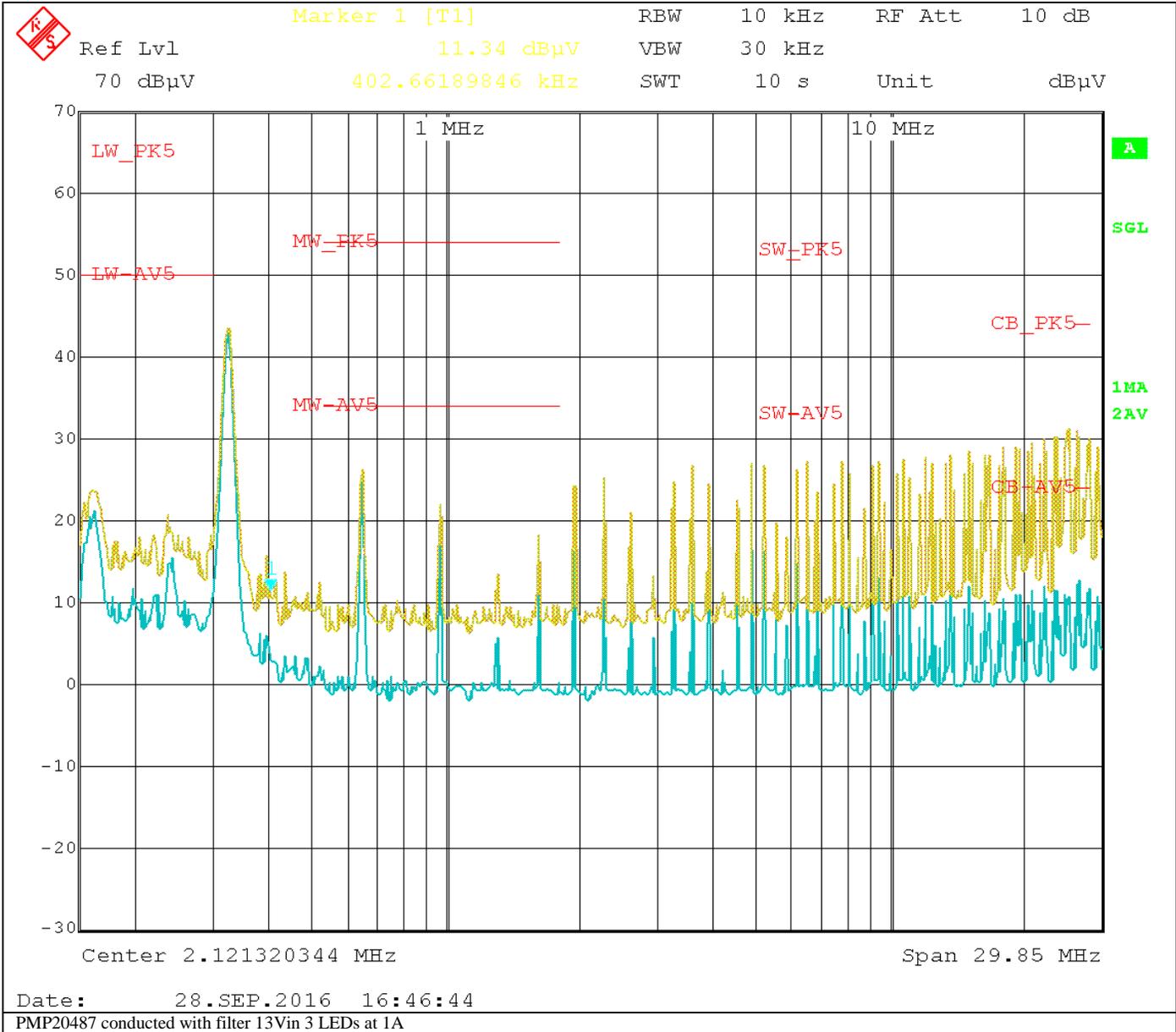
PMP20487 Rev A EMI Test Results



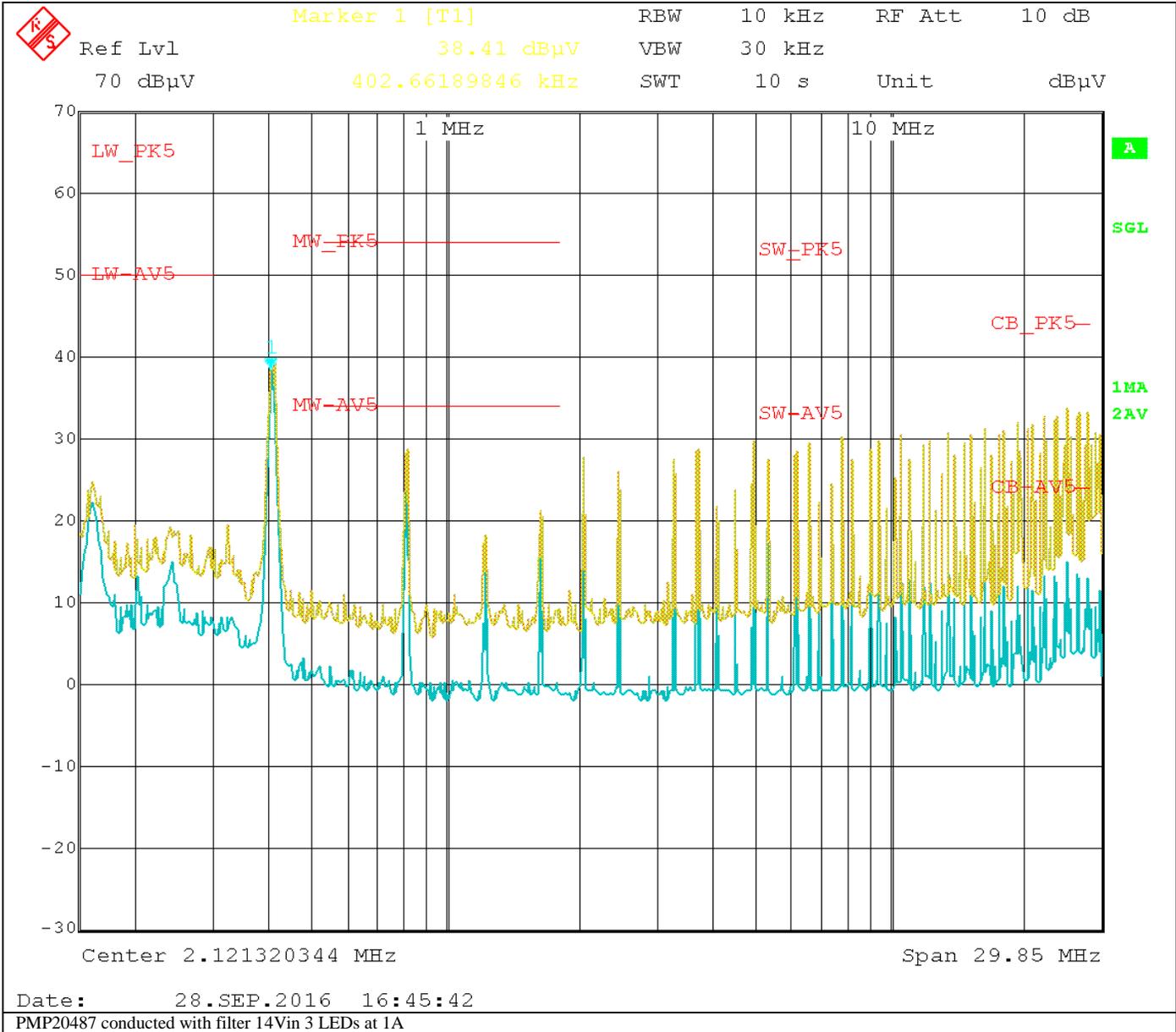
PMP20487 Rev A EMI Test Results



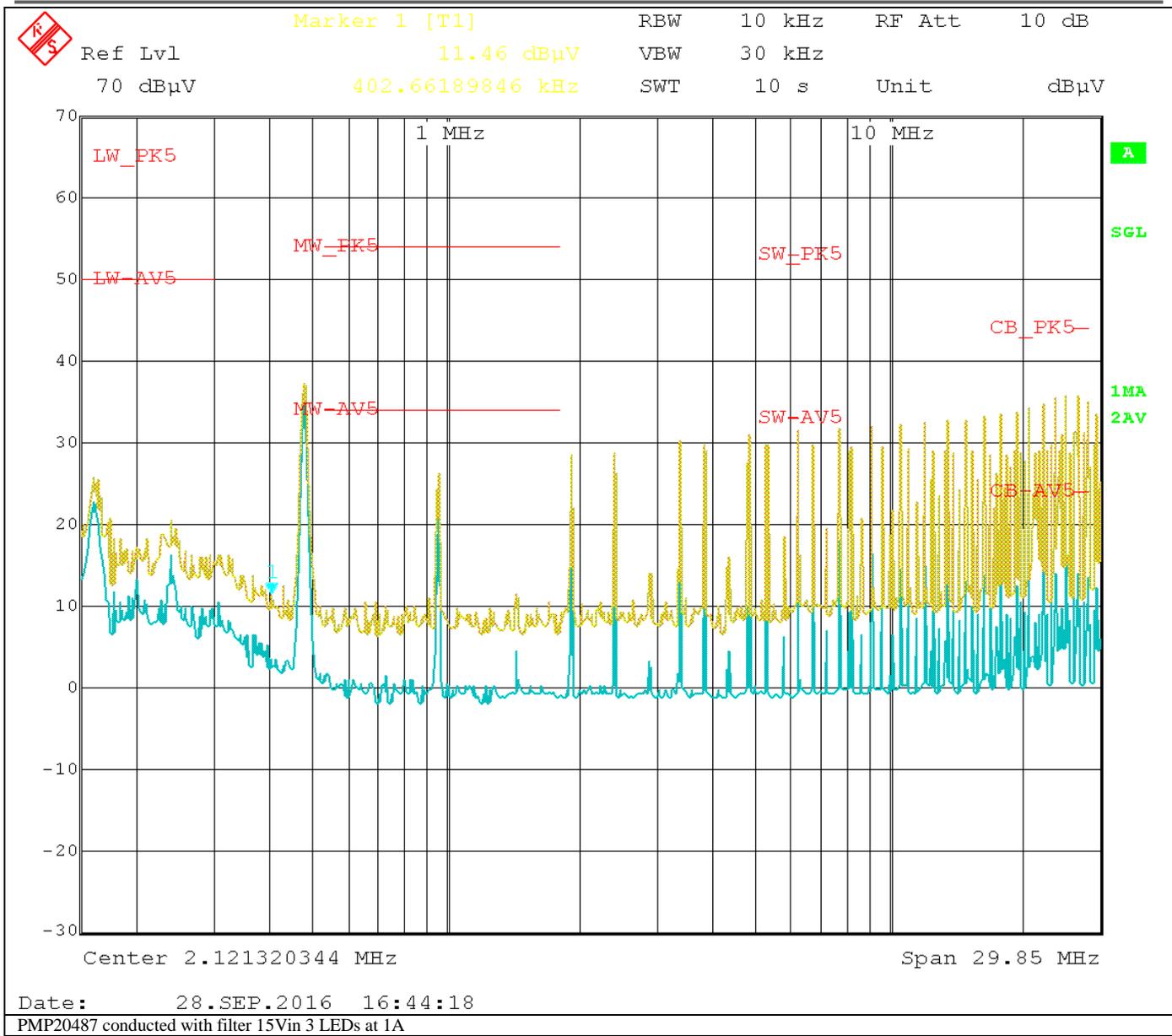
PMP20487 Rev A EMI Test Results



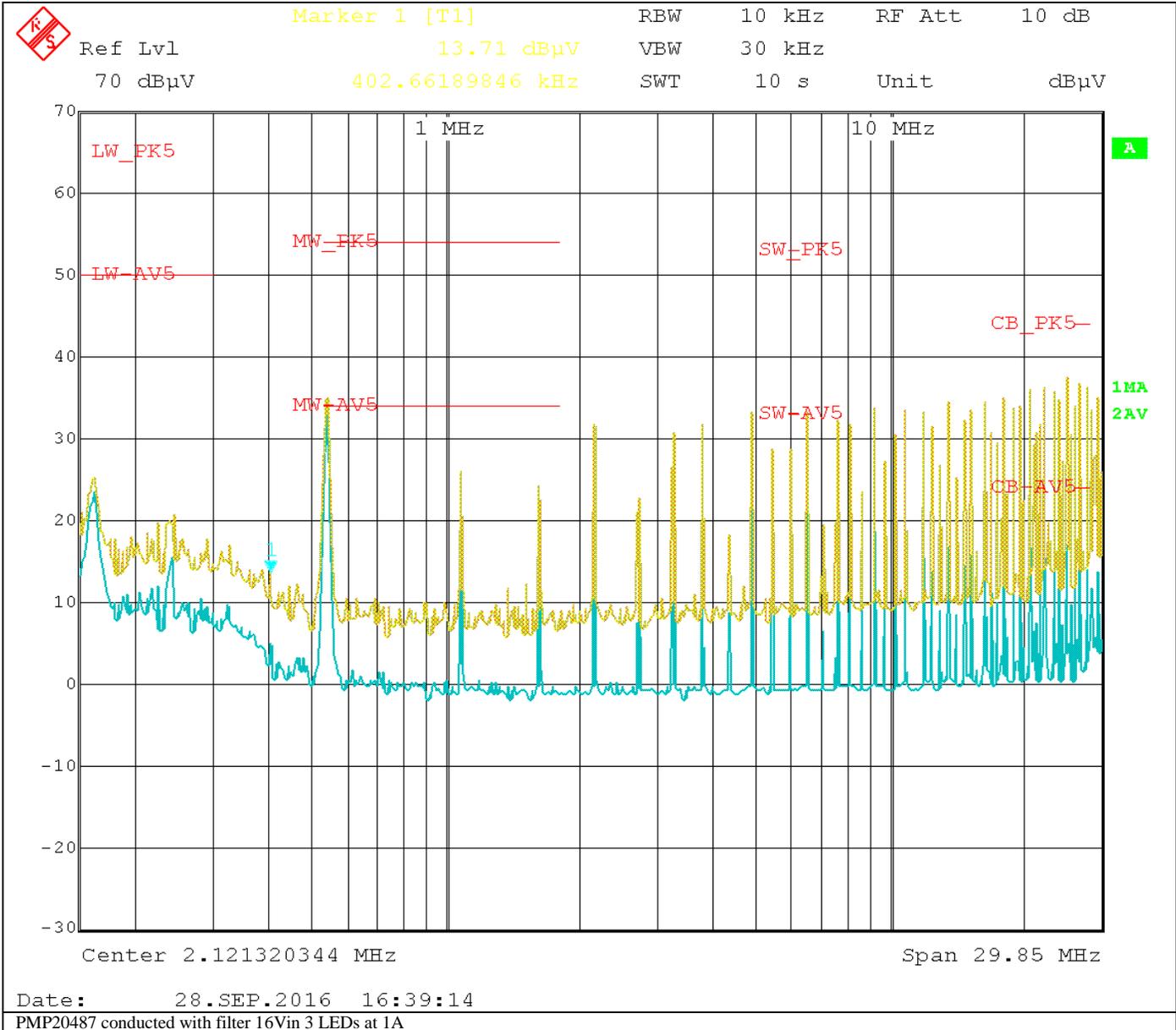
PMP20487 Rev A EMI Test Results



PMP20487 Rev A EMI Test Results



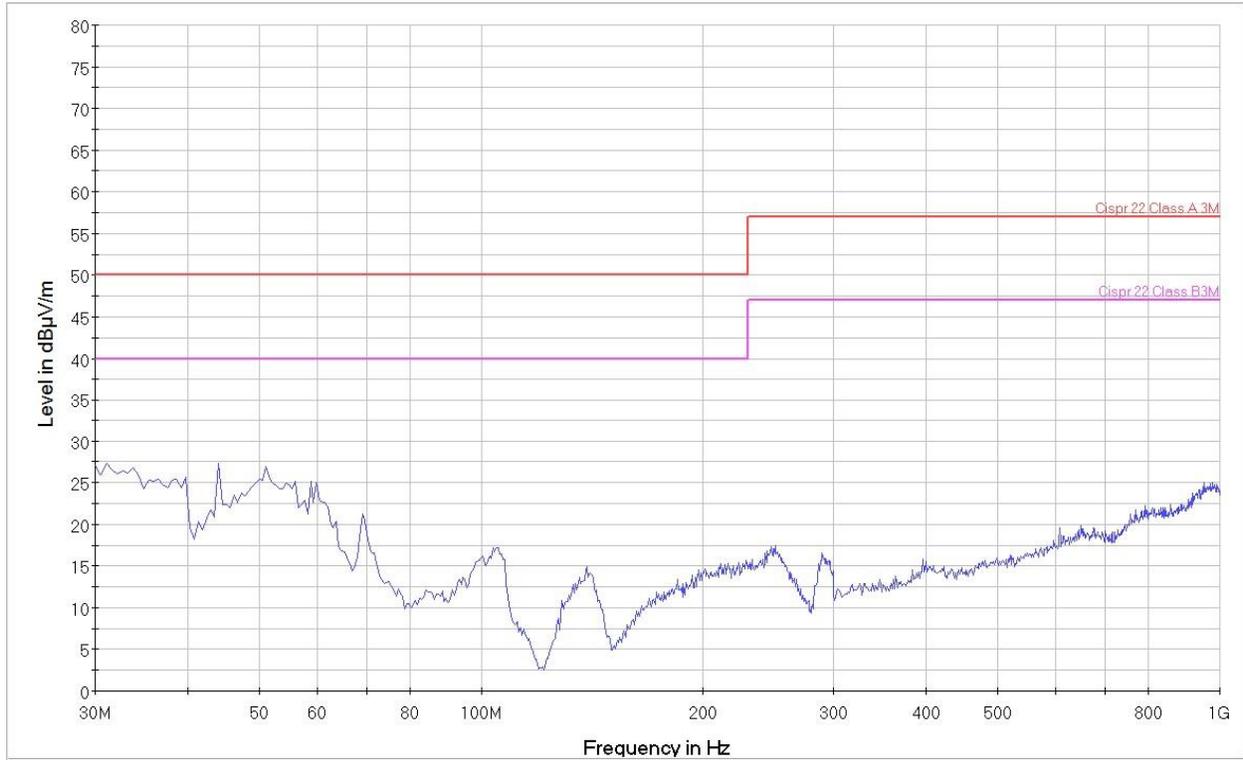
PMP20487 Rev A EMI Test Results



5 Radiated Emissions

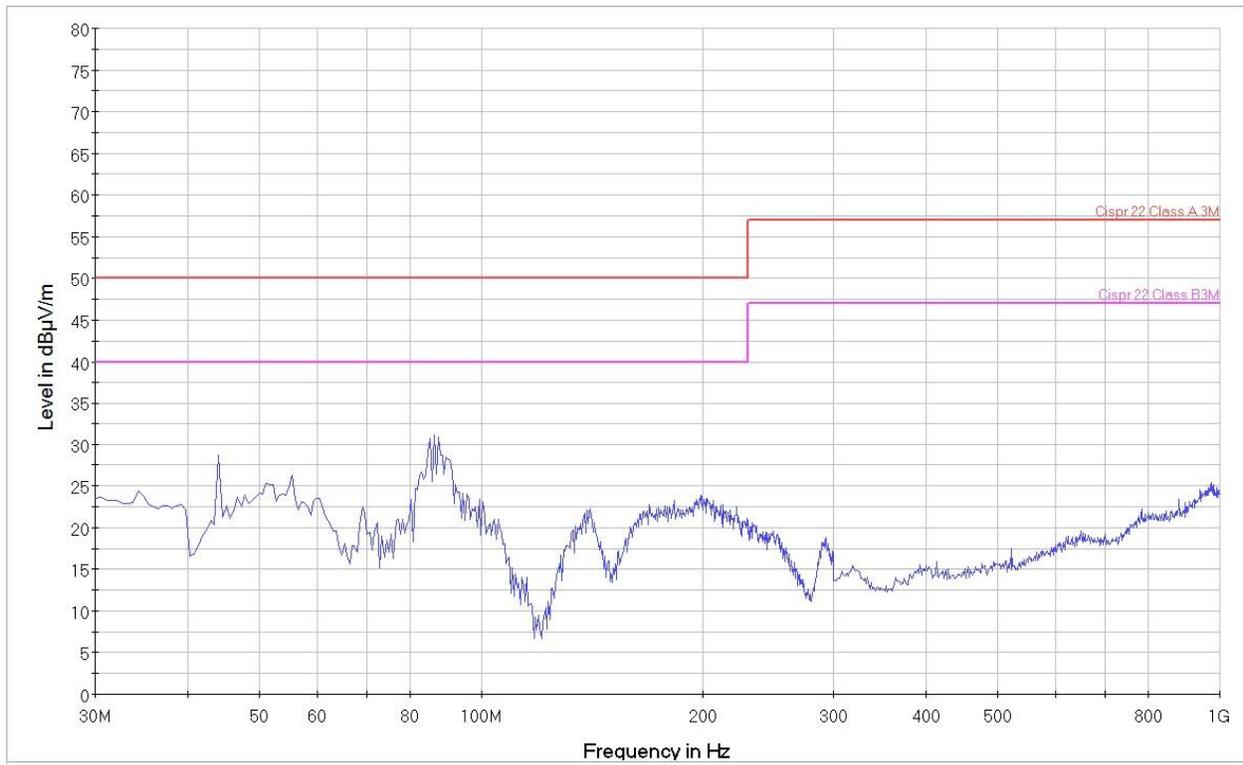
5.1 Radiated Test Results

Tested using a battery power source and external input filter.



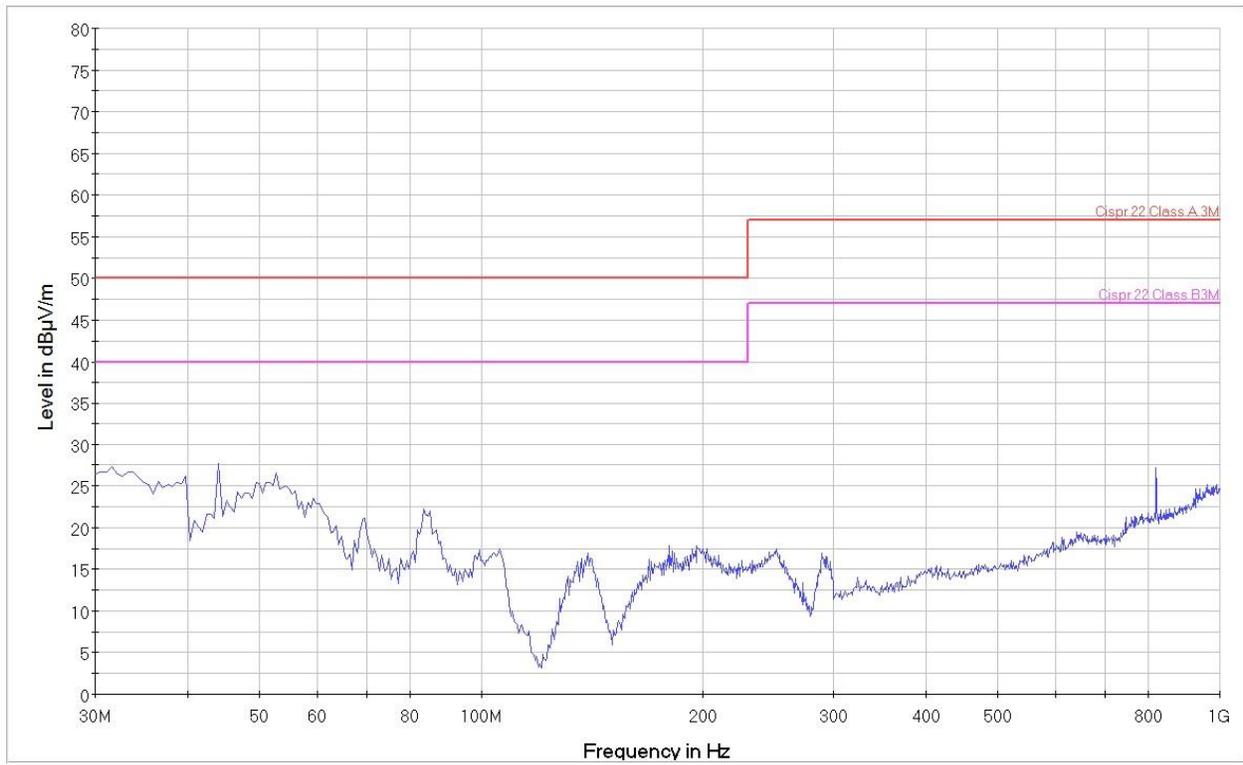
PMP20487 radiated noise floor

PMP20487 Rev A EMI Test Results



PMP20487 radiated 12.6Vin battery 2 LEDs (2S3P) at 1A

PMP20487 Rev A EMI Test Results



PMP20487 radiated 12.8V in battery 3 LEDs (3S3P) at 1A

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (<https://www.ti.com/legal/termsofsale.html>) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2021, Texas Instruments Incorporated