

Re: FCC ID: W6U19PAWS1MIMO

Applicant: SOLiD, Inc.

Correspondence Reference Number: 182088 / 09/03/2014

Date 10/6/2014

Dear Tim,

Please see below for how we believe each of the issues raised in your correspondence have been addressed. TCB has superseded older versions of test report, block diagram and operational description, please advise if you would like both old and new versions to be visible.

Regards,

Daniel Park / Mark Briggs  
UL Verification Services TCB

**Question 1** We are not aware that uniform procedures have been established/specified for testing DAS boosters in configurations other than "Donor-side and server-side components generally need to be tested together as a system." Further, uniform test procedures similar as used herein have not been specified, i.e., with input frequencies from donor-side fed into the remote unit at frequencies not allocated nor licensable for the applicable radio service rules.

FYI OET Lab will look into updating KDB publication(s) accordingly to facilitate uniform processing of future filings for similar devices.

TCB please coordinate with agent/lab/applicant to arrange for updated exhibits as appropriate, then TCB please submit herein after processing consistent with 2.962(b) (i.e., per Guide 65) and 2.962(f) (i.e., per FCC rules and policies).

**Response:** The TCB Process has been adhered to. Additional guidance was not deemed necessary because the current guidance does cover the operation and testing of this device.

This device is a sub-assembly of a Commercial Industrial Booster base unit, operating as the Remote side of a DAS system. The testing has been performed as a part of the DAS system, with the input to this Remote Side being generated by the Donor side. The Frequency of this input is an Intermediate Frequency (IF) frequency and not a transmission frequency. It is understood that the test report is not absolutely clear about this IF frequency, so we have requested that the test report be updated to clearly state this fact.

This module is the Remote Side portion of a professionally installed base unit, much like the Modular nature of most Network Base Station transmitters.

No explicit guidance and/or endorsement had been obtained from FCC (via KDB inquiry and/or e-filing corresp. and/or direct email) related to test procedures.

RF test reports and related exhibits had been updated.

**Question 2)** At least for our local Adobe Acrobat XI and X packages, we get error message and figure not displayed for op. desc. pg. 9/9; please replace exhibit.

**Response:** This is addressed in the Revised Operational Description on page 9 which has been uploaded to the filing.

**Question 3)** Consistent with 935210 D01 and D02 provisions, if not in filing already please amend to identify/describe typical and/or specific "ODU" and/or "OEU," also "BIU," used at host end of an overall booster system that includes "ROU" populated with "RDU" FCC ID W6U19PAWS1MIMO.

**Response:** This is addressed in the Revised Operational Description which has been uploaded to the filing. Please advise if FCC is OK with TCB superseding prior versions.

**Question 4a)** EMC/radio report includes:

PCS Input: 2456.5 MHz - 2521.5 MHz

PCS Output: 1930 MHz - 1995 MHz

AWS Input: 2366.5 MHz - 2411.5 MHz

AWS Output: 2110 MHz - 2155 MHz

Given that "PCS" and "AWS" denote specific FCC radio services with specific allocated and licensable paired bands [24.229, 24.5, 24-E; 27.5(h), 27.4, 27-L], the latter is misleading or even incorrect. Please revise all parts(sections) of test reports and other exhibits to describe these somehow other than "PCS Input" and "AWS Input."

**Response:** PCS Input and AWS Output bands are "IF" bands. The test reports and Operational Description have been modified and uploaded to the filing.

**Question 4b)** EMC/radio report at 3.2 includes "The EUT was operated in a manner representative of the typical usage of the equipment."

Please amend to explain how this testing with "off-channel" input signals and with "partial" signal path only are valid for compliance demonstration of the end-use overall host/remote booster system configuration. As part of description, please also address the 935210 items listed above.

**Response:.** The test reports have been modified and uploaded to the filing.

**Question 4c)** Please amend test setup photos, also system block diagrams, to clearly identify/show input and output RF connector test points, and as relative to normal end-use optical-unit RF port(s) on donor-side.

**Response:** Please refer the revised Block Diagram.

**Question 5a)** It is noted that for example the spec sheet from web for "SOLiD ALLIANCE MULTI-CARRIER DAS" AUG 2014 includes text:  
"ALLIANCE ROU (REMOTE OPTICAL UNIT)

...

Accommodates SISO / MIMO / Public Safety Configurations"  
(<http://www.solid.com/das-solutions/alliance-multi-carrier-das.html>)  
([http://www.solid.com/media/ALLIANCE\\_3PG\\_081914.pdf](http://www.solid.com/media/ALLIANCE_3PG_081914.pdf))

In reply herein please submit explanations, along with system block diagram, how those MIMO modes/operations are implemented with W6U19PAWS1MIMO when used in an overall booster system, i.e. along with associated BIU, ODU/OEU and associated RDU/ROU.

Other background:

Based on exhibits herein, as well as grantee's marketing info and similarity to equipment configurations in other B2I grants per the new framework established under FCC-13-21, compliance demonstration seems needed for reasonably expected end-use MIMO operations when this "RDU" is optionally used as part of a booster system along with same-band/same-frequency integral or connectable (add-on) remote unit(s) ["RDU," or "ROU"], and along with host unit(s) [ODU, OEU, BIU] and transport links that support MIMO streams. Equipment authorization for such operations needs to address KDB pub. 662911 multi-port tests, along with associated technical information describing the end-to-end system configurations.

**Response:** Grantee and Test Lab have been advised and told to correct any misrepresentations related to Public Safety Configurations. Grantee has added the explanation into the Operational Description to show how MIMO is configured and made changes to the test reports to support 2x2 MIMO operations.

**Question 5b)** For this filing AS-IS, and as alternative to item 5a), as soon as possible TCB please amend Form 731/731A with the following grant condition:

*This filing has compliance demonstration information and test data only for SISO (single-input single-output) booster system configurations in AWS-1 band; additional equipment authorization is required to allow this device to be used in AWS-1 band MIMO (multiple-input multiple-output) industrial booster systems.*

A future permissive change filing to update this FCC ID record could be appropriate if updated exhibits become available including compliance information for end-use MIMO operations with the device optionally used as part of a booster system along with same-band/same-frequency integral or connectable (add-on) remote unit(s), and along with host unit(s) and transport links that support MIMO streams.

**Response:** As MIMO operations are now covered the grant condition has been modified to include the text shown below. Please advise if you would like to see any corrections made to this text.

*This filing has compliance demonstration information and test data for SISO (single-input single-output) and 2x2 MIMO booster system configurations. MIMO configurations are achieved by combining two same-band/same-frequency remote units, along with host unit(s) and transport links that support MIMO streams. Output power listed is for a single remote unit when configured for either SISO or 2x2 MIMO operations.*