

Chris Harvey

From: tom@mail.cokenias.org
Sent: Thursday, October 27, 2005 11:49 AM
To: charvey@ieee.org; claire.hoque@ccsemc.com; charvey-tcb@ccsemc.com; christine.vu@ccsemc.com; william.lau@ccsemc.com; sunny.shih@ccsemc.com; tom.cokenias@ccsemc.com
Subject: RE: answer: Airgo Networks, FCC ID: SA3-AGN3023PC0100, Assessment NO.: AN05T5207, Notice#1

Hi Chris,

Engineering justification for waiving SAR testing for channel bonding (CB) mode and the Airgo proprietary SIMO mode is based on the lower power levels in these modes and the fact that CB and SIMO modulations are both OFDM, the same modulation used in 802.11g:

Mode	Max Power	99% bandwidth
802.11g	25.33dBm	16.3 MHz
CB	21.21dBm	16.2 MHz
SIMO	20.93dBm	32 MHz

The EUT was tested for SAR at maximum output for 802.11g. Maximum measured SAR for standard 802.11g was 0.991mW/g. For the CB mode, the modulation and the occupied bandwidth are the same as for standard 802.11g, therefore it is reasonable to expect that SAR will be well below the 0.991 mW/g level as output power is more than 4 dB below that for standard 802.11g (0.398 linear multiplier).

For the SIMO mode, the OFDM modulation is over a occupied bandwidth twice that of standard 802.11g and CB modes, but is otherwise the same type of modulation, and the peak to average ratios are the same. Total power level is 4.4 dB lower than for standard 802.11g (0.363 linear multiplier), and as such the expected maximum SAR level for SIMO mode would be well below 0.991 mW/g.

For future submissions, I will make sure all modes are tested or else I will provide engineering justification as to why testing was waived.

Please contact me by cell if you have quesitons or need further information, I will only have email for about another hour (11:35 AM EDT)

best regards

Tom

Original Message:

From: Chris Harvey Chrisharveyemc@comcast.net
Date: Thu, 27 Oct 2005 10:03:03 -0400
To: claire.hoque@ccsemc.com, charvey-tcb@CCSEMC.com, christine.vu@ccsemc.com, william.lau@ccsemc.com, sunny.shih@ccsemc.com, tom.cokenias@ccsemc.com
Subject: RE: answer: Airgo Networks, FCC ID: SA3-AGN3023PC0100, Assessment NO.: AN05T5207, Notice#1

Tom, I have reviewed your responses and have the following item that still needs to be addressed to clear the open issues in this application.

Your exhibit titles 'Tech Cal for Quest #5.xls' is a justification for question #6, not #5. I can accept the fact that the low and high channels have 2.5 - 3dB lower power than the middle channel as the reason for not performing the SAR testing at the

low and high channels in this host. In the future please either perform the SAR testing at all applicable channels or provide justifications in the SAR test report as to the reason for not performing those tests.

Your explanation that the power in the Channel Bonding mode of operation has equal or lower power than the standard 802.11 b & g modes by itself does not seem sufficient to eliminate the need for SAR testing in that mode. Please either provide a more detailed engineering justification (including relative power levels, bandwidths, types of modulation, etc.) for eliminating these modes of operation (802.11g CB or 802.11g SIMO CB) from the SAR testing or provide the SAR compliance documentation in the Channel Bonding modes of operation.

Please let me know if you have any questions about my additional request.

Best regards,

Chris Harvey
Chris Harvey EMC Consultants, Inc.
charvey@ieee.org
cell 443-622-3300

-----Original Message-----

From: Claire Hoque [mailto:claire.hoque@ccsemc.com]
Sent: Wednesday, October 26, 2005 7:10 PM
To: Chris Harvey; Chris Harvey -TCB
Cc: Christine Vu; William Lau; Sunny Shih; Tom Cokenias
Subject: answer: Airgo Networks, FCC ID: SA3-AGN3023PC0100, Assessment NO.: AN05T5207, Notice#1
Importance: High

Hi Chris,

Here are the answers.

>1. Page 6 of the updated test report indicates that the maximum
>output power is listed in the table; however the table contains the
>Peak Power Spectral Data information. Additionally the font in the
>PDF is very small and hard to view. Please update this section of
>the test report.

<answer>

>2. Please update the Confidentiality Letter exhibit to specifically
>include the MIMO Regulatory Considerations document supplied.

<answer>pls see revised confi. letter attached

>

>3. The revised test report documents a mode of operation called
>Channel Bonding, however the operational description and manual does
>not describe any details of this Channel Bonding. The plots and
>data indicate differences in the Channel Bonding and SIMO Channel
>Bonding. Please include detailed descriptions of each mode. The
>Manual indicated the mode of Adaptive Channel Expansion, but there
>is no link of this name to the Channel Bonding. Are they one and
>the same?

<answer>Yes, they are both referring to the same thing.

An updated theory of operations is attached

>

>4. The SAR plots #3 exhibit submitted appears to be for the Airgo
>AGN1022PC-01 device and not this AGN3023PC-01 device, and the test
>date on these plots was July 6, 2005 whereas the test
>/performance-check date for the remainder of SAR exhibits was
>September 22, 2005.

<answer>The plots have been replaced with accurate test plots for this application.
Pls see the attachment.

>5. SAR test report does not document the Channel Bonding mode.
>Please either justify the exclusion of this mode for SAR testing or
>provide SAR data for these CB modes.
<answer>Channel bonding modes have maximum output power equal to or less than standard
802.11g or 802.11b modes and this was the engineering judgement used to
exclude SAR testing for this mode.

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>6. SAR test in Host #3 ñ Dell appears to have data in the center
>channel of the 802.11g mode (0.914 W/kg) that is less than 3dB below
>the limit of 1.6 W/kg. Please provide data for the low and high
>channels in this configuration.
<answer>The Host # 3 was performed for the Middle Channel only because of 2 reasons.
Pls see below:

A. Power Level: The middle channel has the highest output power (19.02 dBm).
The Low channel has only 16.05 dBm and High Channel has only 16.5 dBm.
Pls see the attachment for technical calculation and test report page 19 of 30.

B. Space distance between EUT & Phantom: The Host # 3 has the most space distance
compared to Host #1 and Host # 2.
Host # 1 & Host # 2 has the same space distance 11 mm. Whereas, Host #3 has 13 mm
space distance.

Thanks,

Claire

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To: claire.hoque@ccsemc.com, charvey-tcb@CCSEMC.com, christine.vu@ccsemc.com,
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Claire

mail2web - Check your email from the web at <http://mail2web.com/> .