

from tim.dwyer@ccsemc.com
to James.Kwon@sgs.com,
cc tim.dwyer@ccsemc.com,
date Wed, Feb 27, 2008 at 1:09 AM
subject Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

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Q11: Information: FCC in the workshop Feb 19-21 stated that laboratories should not report SAR results with multiple simultaneous transmitter operation. (e.g. WLAN+BT, GSM+BT etc.) This is due to the procedures and limitations of probes, tissue liquids, and other measuring instruments which may lead to erroneous or misleading results. Please avoid the practice of simultaneous transmitter SAR measurement procedures for simultaneous SAR measurement have been published.
[James] Acknowledged well.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date will result in forfeiture of the filing fee. Also, please note that partial responses increase processing time and should not be submitted. Any questions about the content of this correspondence should be directed to the sender.

Best regards,

Tim Dwyer



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GSM Module_MC56_3 of 3.zip

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from **Tim Dwyer** <Timothy_Dwyer@ieee.org>
to "Kwon, James (Gunpo)" <James.Kwon@sgs.com>,
cc Mike Kuo <mike.kuo@ccsemc.com>,
Lucy Tsai <lucy.tsai@ccsemc.com>,
date Thu, Mar 13, 2008 at 11:41 PM
subject Re: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1
mailed-by gmail.com

[hide details](#) 11:41 PM (14 hours ago)  [Reply](#) 

Dear James,

I understand now that WLAN + GSM/GPRS do not operate at the same time, so that part is complete. Also other issues appear to be addressed adequately except for Q6. I cannot find the last pages of the test reports as referenced in your reply. For example, you reference page 66 of BT test report, but the revised BT test report has only pages 1-55 of 66. Other revised reports are similar. Please check the reports again to make sure all pages are there.

For BT + GSM/GPRS and BT + WLAN we need to know precisely the smallest distance between the antenna pairs.

So please tell us the shortest distance (1) between BT and GSM/GPRS antenna (2) between BT and WLAN antenna.



Best regards,

Tim Dwyer

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 **Kwon, James (Gunpo)** to Tim, Mike, Lucy

[show details](#) 3:21 AM (10 hours ago)  [Reply](#) 

Dear Tim,

Pls find our reply at below.

Thanks and have a nice day.
James/SGS

From: rfspectrum@gmail.com [mailto:rfspectrum@gmail.com] **On Behalf Of** Tim Dwyer
Sent: Friday, March 14, 2008 12:42 PM
To: Kwon, James (Gunpo)
Cc: Mike Kuo; Lucy Tsai
Subject: Re: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

Dear James,

I understand now that WLAN + GSM/GPRS do not operate at the same time, so that part is complete. Also other issues appear to be addressed adequately except for Q6. I cannot find the last pages of the test reports as referenced in your reply. For example, you reference page 66 of BT test report, but the revised BT test report has only pages 1-55 of 66. Other revised reports are similar. Please check the reports again to make sure all pages are there.

[James] My mistake. following reply is exact one for Q6 : <Feel> Pls refer to page 66 of "Internal photos_BT_FCC&IC_OptimusPDA SP5700 Series_1st" revised, page 64 of "Internal photos_WLAN_FCC&IC_OptimusPDA SP5700 Series_1st" revised, and page 40 of "Internal photos_GSM_OptimusPDA SP5700 Series_1st" revised. For easy work, I attached all revised files.

For BT + GSM/GPRS and BT + WLAN we need to know precisely the smallest distance between the antenna pairs.

So please tell us the shortest distance
(1) between BT and GSM/GPRS antenna **[James] 46 mm**
(2) between BT and WLAN antenna. **[James] 8 mm**

- Show quoted text -
- Show quoted text -

From: rfspectrum@gmail.com [mailto:rfspectrum@gmail.com] **On Behalf Of** Tim Dwyer

Sent: Monday, March 17, 2008 8:52 AM
To: Mike Kuo
Subject: Fwd: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

...

[Message clipped] -----
From: Mike Kuo <mike.kuo@ccsemc.com>
Date: Mon, Mar 17, 2008 at 1:13 PM
To: Mike Kuo <mike.kuo@ccsemc.com>, Tim Dwyer - TCB <Timothy_Dwyer@ieee.org>

With attachment.

From: Mike Kuo
Sent: Monday, March 17, 2008 10:12 AM
To: Tim Dwyer - TCB

From: rfspectrum@gmail.com [mailto:rfspectrum@gmail.com] **On Behalf Of** Tim Dwyer

Subject: Fwd: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

...

[Message clipped] -----
From: Tim Dwyer <Timothy_Dwyer@ieee.org>
Date: Mon, Mar 17, 2008 at 2:03 PM
To: "Kwon, James (Gunpo)" <James.Kwon@sgs.com>

Cc: Mike Kuo <mike.kuo@ccsemc.com>, Lucy Tsai <lucy.tsai@ccsemc.com>, "Jeong, Feel (Gunpo)" <Feel.Jeong@sgs.com>

Dear James,

Here are our replies.

#1 It is not necessary to increase the antenna separation to 5 cm. We can do the TCB approval with 4.6 cm.

#2 A letter is not needed.

#3 (New) For TCB evaluation of WLAN-BT co-located with simultaneous transmission, we need standalone SAR for highest output channel for left head, right head and body worn SAR. This is due to the recent FCC guidance for co-located simultaneously operating transmitters. After we receive the test data, we can issue the grant.



From: Tim Dwyer <Timothy_Dwyer@ieee.org>
Date: Mon, Mar 17, 2008 at 2:06 PM
To: "Kwon, James (Gunpo)" <James.Kwon@sgs.com>


Cc: Mike Kuo <mike.kuo@ccsemc.com>, Lucy Tsai <lucy.tsai@ccsemc.com>, "Jeong, Feel (Gunpo)" <



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 **Mike Kuo** to James, Tim, Lucy, Feel, Leo, Fred

[show details](#) Mar 19 (2 days ago)  [Reply](#) 

Hi James and Leo:

Replies are embedded below your reply:

Best Regards

Mike Kuo

Compliance Certification Services

47173 Benicia Street

Fremont, CA 94538

Direct: (510) 771-1105

Fax: (510) 661-0888

Main: (510) 771-1000

e-mail:mike.kuo@ccsemc.com

Web Site:www.ccsemc.com

From: Kwon, James (Gunpo) [mailto:James.Kwon@sgs.com]
Sent: Tuesday, March 18, 2008 11:24 PM
To: Tim Dwyer - TCB

Cc: Mike Kuo; Lucy Tsai; Jeong, Feel (Gunpo); Kim, Leo (Gunpo); Jeong, Fred (Gunpo)
Subject: RE: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

(re-mind !!!)

From: Kwon, James (Gunpo)
Sent: Tuesday, March 18, 2008 2:01 PM
To: 'Tim Dwyer'
Cc: Mike Kuo; Lucy Tsai; Jeong, Feel (Gunpo); Kim, Leo (Gunpo); Jeong, Fred (Gunpo)
Subject: RE: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

Dear Tim,

Pls find our reply (Blue bold letter) from SAR engineer at below.

Thanks and have a nice day.

James/SGS

From: rfspectrum@gmail.com [mailto:rfspectrum@gmail.com] **On Behalf Of** Tim Dwyer
Sent: Tuesday, March 18, 2008 3:04 AM
To: Kwon, James (Gunpo)
Cc: Mike Kuo; Lucy Tsai; Jeong, Feel (Gunpo)
Subject: Re: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

Dear James,

Here are our replies.

#1 It is not necessary to increase the antenna separation to 5 cm. We can do the TCB approval with 4.6 cm.

#2 A letter is not needed.

#3 (New) For TCB evaluation of WLAN-BT co-located with simultaneous transmission, we need standalone SAR for highest output channel for left head, right head and body worn SAR. This is due to the recent FCC guidance for co-located simultaneously operating transmitters. After we receive the test data, we can issue the grant.

#4 (New) The additional measurement requested is for Standalone BT highest output channel for left head, right head and body worn SAR. Sorry, but I left out Standalone BT in my first email. This means BT operating alone - no other transmitters active.

[Leo] I'm Leo Kim in charge of SAR testing. Regarding SAR test report, should the BT-SAR testing for stand-alone be performed due to the guidelines for co-located simultaneously operating transmitters ?

[Mike Kuo] BT stand alone SAR is required due to WLAN-to-BT antenna separation distance is less than 2.5 cm and WLAN and BT can transmit simultaneously. This requirement is based upon KDB 648474 released on Feb. 2008.

As far as I know, SAR testing for low power equipment like Bluetooth is normally not applicable. Then, for co-located simultaneously operating transmitters, SAR testing for stand-alone should always be conducted even though the transmitting power is Low ? I think that it is not reasonable.

[Mike Kuo] Once again, two conditions that are applicable to stand alone SAR requirements:

Stand-alone SAR not required when


- o output $\leq 2 \cdot P_{Ref}$ and antenna is > 5.0 cm from other antennas
- o output $\leq P_{Ref}$ and antenna is > 2.5 cm from other antennas


The output power of BT is less than Pref (12mW) but the WLAN-to-BT antenna separation distance is less than 2.5 cm. Stand alone BT SAR is not simultaneously volume scan tests but one area/zoom scan on the highest output power channel of BT. You need to turn on BT only at body worn SAR.

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 from **Kim, Leo (Gunpo)** <Leo.Kim@sgs.com>
to Mike Kuo <mike.kuo@ccsemc.com>, "Kwon, James (Gunpo)" <James.Kwon@sgs.com>, Tim Dwyer - TCB <Timothy_Dwyer@ieee.org>,
cc Lucy Tsai <lucy.tsai@ccsemc.com>, "Jeong, Feel (Gunpo)" <Feel.Jeong@sgs.com>, "Jeong, Fred (Gunpo)" <Fred.Jeong@sgs.com>,
date Thu, Mar 20, 2008 at 11:10 AM
subject RE: Metrologic Instruments Inc. , FCC ID: LW5SP5700, Assessment NO.: AN08T7610, AN08T7611, AN08T7612 Notice#1

Images are not displayed.
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Dear Mike and Tim

Thanks for your very helpful comments

[hide details](#) Mar 20 (2 days ago)   [Reply](#) 

I've attached a SAR test report including BT Stand alone SAR testing.

I hope this report is what you require.

Kind regards,

Leo

Leo Kim /

Wireless div. GSM/RSE/OTA/SAR/HAC
Assistant Section Chief /

SGS Testing Korea Co., Ltd.

6th Fl. SGS B/D, 18-34, Sanbon-dong, Gunpo-city, Gyeonggi-do, Korea
435-040

Phone: +82 (0)31 428 5743
Mobile: +82 (0)17 219 5759

F a x: +82 (0)31 428 5879
E-mail : leo.kim@sgs.com

From: Mike Kuo [mailto:mike.kuo@ccsemc.com]

Sent: Thursday, March 20, 2008 11:00 AM

To: Kwon, James (Gunpo); Tim Dwyer - TCB

Cc: Lucy Tsai; Jeong, Feel (Gunpo); Kim, Leo (Gunpo); Jeong, Fred (Gunpo)

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Stand-alone SAR not required when

o output ≤ 2·P_{Ref} and antenna is > 5.0 cm from other antennas

o output ≤ P_{Ref} and antenna is > 2.5 cm from other antennas

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