

To: Boers, Peter
Cc: Terre Wolak ES-Atl
Subject: RE: Bose FCC ID: A94YZM and IC:3232A-YZM Time of Occupancy

Peter,

Thank you for the additional plots. They confirm the calculations in the test report. The amplitude variations caused by adjacent channels partially within the resolution bandwidth is commonly observed.

Regards,
Roland

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

From: Boers, Peter [mailto:Peter_Boers@bose.com]
Sent: Thursday, April 21, 2005 11:08 AM
To: Roland Gubisch ES-Box
Cc: Terre Wolak ES-Atl
Subject: RE: Bose FCC ID: A94YZM and IC:3232A-YZM Time of Occupancy

Roland

attached is a document with some timing plots; I can run other ones if required. These are made in a default startup mode when the Master transmitter is looking for a slave unit to connect to. The SA is tuned to 2.45 GHz - an arbitrary position in the middle of the band. RBW= 1 MHz, Span=zero, detector=peak. Bear in mind that the RBW is larger than the channel spacing, though the occupied BW is more than the RBW, so one will measure two or three adjacent channels with some minor amplitude differences in this setting of RBW.

From: Roland Gubisch ES-Box
Sent: Wednesday, April 20, 2005 5:14 PM
To: 'Peter Boers @ Bose'
Cc: Terre Wolak ES-Atl
Subject: Bose FCC ID: A94YZM and IC:3232A-YZM Time of Occupancy
Peter,

Both test reports rely on calculations rather than measurements to indicate compliance with the 0.4 s time of occupancy requirement. Is there any reason why the measurement procedure provided by the FCC in DA-00-705 cannot be used to show compliance?

This is the only remaining issue prior to certification of FCC ID: A94YZM.

Thank you,
Roland Gubisch
Intertek

rMessageTo: Kanter, Jon
Cc: Terre Wolak ES-Atl; Boers, Peter
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Dear Jon,

I understand your reluctance to add information on RF exposure precautions to your user manual. You are to be complimented on your research of the relevant rules.

Unfortunately, there is no way to convey to the user the circumstances under which your device satisfies the conditions of 15.247(b)(5) other than a precaution about separation distance (or by performing SAR testing). Again, the calculations in your test report indicate that FCC RF exposure limits are exceeded if the separation distance is less than 7 cm.

Both the FCC and the TCBs are consistently applying the Grant note I cited in my previous e-mail, which references the 20 cm separation distance, to mobile devices with comparable conducted output power to your transmitter. And the only way to satisfy the requirements of that Grant note is to provide guidance in the user manual. For example, please refer to this certification performed by the FCC:

FCC ID: PM7-DCMI2001 300 mW 15.247

In the User Manual:

- RF Exposure - To comply with FCC RF exposure requirements for mobile transmitting devices this transmitter should only be used or installed at locations where there is normally at least a 20 cm separation between the antenna and all persons.
- Do not co-locate and operate in conjunction with any other antenna or transmitter.

The RF exposure information can be located at the rear of the user manual, where it is not intimidating to the reader but is available nevertheless.

If you remain unconvinced of the need for this user information, I would be happy to query the FCC about it on a confidential basis, so the identity of the applicant is not given.

Regards,
Roland Gubisch
Intertek

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

From: Kanter, Jon [mailto:Jon_Kanter@bose.com]

Sent: Friday, April 08, 2005 9:39 AM

To: Roland Gubisch ES-Box

Cc: Terre Wolak ES-Atl; Boers, Peter

Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Roland,
Thank you for this information and references. We looked at these.

As you mention, Part 15.247 does not explicitly indicate any requirements regarding user manual statements.

In Part 2.1091(c), it is explicitly stated that mobile devices of our type are not required to have any RF exposure evaluation prior to being authorized:

"...All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to

equipment authorization or use, except as specified in §§1.1307(c) and 1.1307(d) of this chapter..."

The referenced parts, 1.1307(c) and (d) do not appear to contain any applicable differences.

This section goes on to state that "...Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application..."

This indicates that since our product does not require routine environmental evaluation, no exposure compliance statement is required in the application. This calculation was included in our report merely as an additional indication that the product does not require exposure evaluation. We can delete it if that would help.

Part 2.1091(d) (3) indicates that compliance with exposure guidelines can be accomplished by using warning labels and user information:

"If appropriate, compliance with exposure guidelines for devices in this section can be accomplished by the use of warning labels and by providing users with information concerning minimum separation distances from transmitting structures and proper installation of antennas."

We argue that warning labels and any other warning information to the user (i.e. via the users manual), are not appropriate given that the product is not required to undergo any exposure evaluation, nor even required to have the application contain a statement confirming compliance.

We really do not want to include a warning statement in the owners manual. We do not feel it is necessary. Please re-consider if this is an actual absolute requirement.

Thanks,
Jon

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

From: Roland Gubisch ES-Box [mailto:roland.gubisch@intertek.com]
Sent: Thursday, April 07, 2005 3:40 PM
To: Kanter, Jon
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Jon,

Thank you. FCC rules are maintained on-line at:

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?&c=ecfr&tpl=/ecfrbrowse/Title47/47tab_02.tpl

The section 15.247 rules are updated there as of April 2005, and the section 15.247(b) (5) reads as follows:

"(5) Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §1.1307(b) (1) of this chapter."

This is not particularly explicit, but it means that you have to ensure that users keep away a certain distance from the transmitter while it is in operation - because MPE RF exposure levels are exceeded if you approach closer than 7.6 cm according to the calculations in your test report.

MPE (Maximum Permissible Exposure) limits apply for mobile devices, which are defined as remaining > 20 cm from the user and others. Therefore, you should include a notice or warning statement in the manual indicating that the device complies with FCC rules regarding RF exposure, but a 20 cm separation distance should be maintained from the transmitter. Note the last sentence of the Grant note below.

When this device is certified, the Grant will carry an RF exposure note which is required by the FCC for devices where MPE or SAR is a factor. In this case, the Grant note will read:

"The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance."

I hope this helps. Please feel free to contact me with any other issues.

Regards,
Roland Gubisch
Intertek

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

From: Kanter, Jon [mailto:Jon_Kanter@bose.com]
Sent: Thursday, April 07, 2005 1:14 PM
To: Roland Gubisch ES-Box
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Roland,

We are in-process of addressing the points below and will be sending you a new report and files shortly.

One item we have a question about is item 1 listed under administrative, regarding an RF exposure statement. We can't seem to find the reference you list for Part 15 in our copy which is dated Jan05. Could you please check this? I should be able to find it.

Thanks,
Jon

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

From: Roland Gubisch ES-Box [mailto:roland.gubisch@intertek.com]

Sent: Wednesday, April 06, 2005 3:51 PM

To: Kanter, Jon

Cc: Terre Wolak ES-Atl

Subject: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Jon,

Review of this application is complete, and the following points are noted:

ADMINISTRATIVE

1. User manual - an RF exposure statement is required according to 15.247(b)(5). For a mobile device, it should inform the user that FCC RF exposure requirements are met with a separation distance of 20 cm or more. The calculation provided in section confirms this, but it must be communicated to the user.

2. Test report - the test report does not contain any signatures, nor issue date. A sample calculation should also be provided, as required by 2.1033(b)(6).

3. Test report - The phrase "what happens then?" occurs on page 6. This should be resolved or deleted.

TECHNICAL

1. Test report - No LISN is specified under section 4.1 "Test Instruments" nor in section 5 "Test Equipment." Please add.

2. Test report and Test setup photos - no LISN nor vertical ground plane is either described or depicted, per ANSI C63.4-2003. Can this information be provided?

3. Test report and Test setup photos - connecting cables are not clearly defined. ANSI C63.4-2003 requires cabling reflecting "normal usage." Please describe how this was satisfied.

4. Test report measurement distance - some radiated emissions above 1 GHz are measured at 1m. Please describe how the near field of the EMC0 3115 antenna is avoided at this distance, if it was used.

5. Test report resolution bandwidth - resolution bandwidth was reported to be reduced in order to increase signal-to-noise ratio with unmodulated carrier. This is acceptable to search for emissions, but not for reporting regulatory measurements. Please describe the bandwidth of the unmodulated carrier and the resolution bandwidths actually used.

6. Test report noise floor above 1 GHz - Typical analyzer noise floor at 1 MHz RBW in the range 1 - 20 GHz is 16 dBuV. Typical antenna factor is 40 dB/m, for a net measurement noise floor of 56 dBuV/m plus cable losses. This is ~20 dB above some of the reported field strength measurements. Please indicate if the spectrum analyzer you used was equipped with the optional preamplifier, and how measurements were reported below the expected noise floor.

Certification can proceed as soon as these points are addressed. Thank you.

Sincerely,
Roland Gubisch
Intertek

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

From: Roland Gubisch ES-Box
Sent: Wednesday, April 06, 2005 9:13 AM
To: 'Kanter, Jon'
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Jon,

That's great - I was just closing the loop, since I passed the comments to Terre yesterday and hadn't seen a response.

Regards,
Roland

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

From: Kanter, Jon [mailto:Jon_Kanter@bose.com]
Sent: Wednesday, April 06, 2005 9:04 AM
To: Roland Gubisch ES-Box
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Hi Roland,

I sent those items to Terre yesterday. If he doesn't have them, let me know, and I can send them again.

Jon

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

From: Roland Gubisch ES-Box [mailto:roland.gubisch@intertek.com]
Sent: Wednesday, April 06, 2005 8:50 AM
To: Kanter, Jon
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Jon,

That's reassuring, thanks. There are a couple of exhibits still needed for this application, see below. You may not have seen this request yet.

Regards,
Roland

1) Separate external and internal photos. The FCC system requires that external and internal photos be 2 separate files. All of the photos have been provided to us as one PDF file. Please provide one external photo (identical to the view already provided) as a separate file.

2) ID label location. The FCC requires that the location of the FCC label be identified on the product, either with a drawing or photo. Please provide a file that indicates label location.

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

From: Kanter, Jon [mailto:Jon_Kanter@bose.com]
Sent: Wednesday, April 06, 2005 7:17 AM
To: Roland Gubisch ES-Box
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Roland,

We did indicate that our lab is not available for outside testing. A2LA has assured us that they would take care of entering us into the FCC database, but I'm not positive they followed through. Hopefully so.

Thanks much,
Jon

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

From: Roland Gubisch ES-Box [mailto:roland.gubisch@intertek.com]
Sent: Tuesday, April 05, 2005 5:36 PM
To: Kanter, Jon
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Jon,

Thank you, this is excellent. I will assume that Bose is in the FCC database of test labs which do not perform contract testing, because contract labs are visible. I won't know until I begin the filing process (tomorrow). If it doesn't work, then you may need to contact A2LA.

Regards,
Roland

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

From: Kanter, Jon [mailto:Jon_Kanter@bose.com]
Sent: Tuesday, April 05, 2005 5:25 PM
To: Roland Gubisch ES-Box
Cc: Terre Wolak ES-Atl
Subject: RE: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Hi Roland,
Please find attached a copy of the A2LA certificate and scope...

Jon

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

From: Roland Gubisch ES-Box [mailto:roland.gubisch@intertek.com]
Sent: Tuesday, April 05, 2005 4:50 PM
To: Kanter, Jon
Cc: Terre Wolak ES-Atl
Subject: Bose Homewide Wireless Audio Link FCC ID: A94YZM

Dear Jon,

During the course of my technical review of this Part 15 application, I have to verify that the certification test report was issued by a lab that is either (a) listed with the FCC under CFR 47 2.948, or (b) accredited for Part 15 testing by A2LA or NVLAP. I have been unable to confirm that either case applies to Bose DCE EMC Laboratories. The text of the requirement is given below. Can you provide further information on this matter?

Thank you,
Roland Gubisch
Intertek

§ 2.948 Description of measurement facilities.

(a) Each party making measurements of equipment that is subject to an equipment authorization under part 15 or part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.

(1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.

(i) If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.

(ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.

(2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current. A laboratory that has been accredited in accordance with paragraph (d) of this section is not required to file a description of its facilities with the Commission's laboratory, provided the accrediting organization (or designating authority in the case of foreign laboratories) submits the following information to the Commission's laboratory:

- (i) Laboratory name, location of test site(s), mailing address and contact information;
- (ii) Name of accrediting organization;
- (iii) Date of expiration of accreditation;

- (iv) Designation number;
- (v) FCC Registration Number (FRN);
- (vi) A statement as to whether or not the laboratory performs testing on a contract basis