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Reply to an OET Inquiry Response

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Contact Information:

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Inquiry Details:

First Inquiry Category: **Radio Frequency Exposure - MPE; SAR**
 Second Inquiry Category: **Portable - Part 2.1093**
 Third Inquiry Category: **Non-handset SAR**

Hello, we wanted to confirm with you if this device will require SAR Evaluation.

Powers are about 0.2 W max. for one radio, WLAN 802.11b/g = 0.13 W bluetooth = 0.003 W; These powers fall below the threshold indicated in the guidance in KDB 447498 4) c) iii) and are therefore exempt from Hand SAR.

There are no transmission limitations except that WIMAX and WLAN cannot transmit simultaneously.

The applicant is only considering the position held by the hands for typical usage, and does not consider this device small enough to be typically used on the body or worn in the pocket of an end-user. There will be no belt-clip or similar body-worn accessory available for this device.

Device will not be able to be utilized held-to-ear.

---**Reply from Customer on 03/12/2009**---

All radios operate at 2.5GHz.

---**Reply from Customer on 03/20/2009**---

Thank you for your response. Please confirm with us the following conclusions we are making based on the following information:

1) With user input (i.e. held with both hands) the radios have full transmit capability. However, without any user input (i.e. web browsing, key inputs, touch), the device will enter into an idle mode where there can be no transmit of data, until the user engages the device with their hands again, to release the device out of idle mode.

2) Under the device capability described in (1), this means that any condition where the user may place this device in a coat pocket, etc. will not result in any sustained continuous transmission of data after timeout to idle mode. Based on this, we are concluding that any Body-Worn condition will not require Body SAR. KDB 447498 (4)(c)(iii) (2) and (3) also do not apply since: will not be worn on wrist, feet or ankles and the device will not operate in sustained Tx mode without two hands on the device engaging the device. Such conditions apply when device is more than 5cm away from the Body of the User since both hands are used to operate the device.

Radio 1: Part 27, 2.5-2.7 GHz WIMAX, 1 Tx antenna, 0.2 Watts
 Radio 2: Part 15, 2.4-2.5 GHz Bluetooth, 1 Tx antenna, 0.003 Watts
 Radio 3: Part 15, 2.4-2.5 GHz WLAN 802.11b/g, 1 Tx Antenna, 0.13 Watts

All radios are less than $1000 \cdot f^{-0.5}$, so therefore Hand SAR does not apply per KDB 447498 (4)(c)(iii) (1).

3) Based on the above radio information, we have concluded that this device is exempt from Hand and Body SAR Testing.

---**Reply from Customer on 04/01/2009**---

- 1) Please find updated letter of declaration including both WLAN and WIMAX transmitters
- 2) Please see updated letter to address body-exposure conditions for 802.11b/g
- 3) See attached relevant manual excerpt to be included in the Users Manual
- 4) Please see updated letter addressing feature
- 5) Please find attached exact antenna information with device photo

---**Reply from Customer on 04/02/2009**---

Thank you for your quick response. Please find attached User Manual wording. FCC ID: A3LSWDM100

---**Reply from Customer on 04/03/2009**---

Please find final updated Declaration Letter and Users Manual with specific guidance received from Apr 2.

Response(s):

--OET response sent on Mar 16 2009 2:44PM--

P1) Powers are about 0.2 W max. for one radio, WLAN 802.11b/g = 0.13 W bluetooth = 0.003 W; These powers fall below the threshold indicated in the guidance in KDB 447498 4) c) iii) and are therefore exempt from Hand SAR.

P2) There are no transmission limitations except that WiMAX and WLAN cannot transmit simultaneously.

P3) The applicant is only considering the position held by the hands for typical usage, and does not consider this device small enough to be typically used on the body or worn in the pocket of an end-user. There will be no belt-clip or similar body-worn accessory available for this device.

P4) Device will not be able to be utilized held-to-ear.

P5) All radios operate at 2.5GHz.

F1) In general, device operating specifics are needed, such as how it may transmit in non handheld configurations in order to determine whether SAR might be necessary for the body. For example, the types of data transmission ? large files (long transmissions) vs. short packets from browsing etc., and other relevant info to determine if there could be any body exposure issues.

F2) Also need to address possibility of third-party body-worn accessories.

F3) In general, KDB 448498 (4)(c)(iii) (2) and (3) for hand AND body both need to be addressed, ie cannot be omitted up front.

F4) In general, what the manufacturer considers is not sufficient for determining test requirements. Info about how the device actually operates is necessary for determining test requirements. In some situations, the info would also help to determine if certain user manual instructions may be used to alleviate user confusion; therefore, making SAR evaluation for certain unclear conditions unnecessary.

F5) Concerning transmission characteristics in non handheld configurations, can it be used without one's hands, if so and it is quite remote, what instructions can be provided to address such cases

F6) Concerning device size/dimensions, can it fit into a shirt pocket or inside coat pocket etc., then can it transmit, or if such is quite remote, what are those circumstances and could instructions be provided?

F7) Concerning a scenario file uploads placed in pocket or attending to other tasks, how large a file can it transfer [memory capacity and other device capabilities] and what estimated transmission durations are expected [i.e. transmission capabilities]? We are assuming the device will not disable transmission with the lid closed and placed whatsoever next to the body, pocket, purse etc..

F8) For the two handheld configurations (slider in and out), if device needs both hands to operate, that might support that balanced on lap use might be reasonably expected; if one-hand use is possible, some instructions may be necessary to rule out other remote and unintended operations

F9) All radios operating at 2.5GHz is unclear - please explain specific transmission bands and modes, and applicable rules, at least for each relatively higher power transmit function

Info per above items has to be based on actual product implementation, as opposed to what the manufacturer thinks, might consider, or plans to do. We are unable to provide guidance for these latter circumstances because if they change their mind, we do not want anyone to assume that our responses would continue to apply, which could lead to more issues later.

If the info described above is not available at this time, one will have to assume that the device may operate within 5 cm of the body (KDB 447498) and will need to establish a conservative test separation distance based on possible operating conditions to conduct SAR. We will still need some info per above to establish this test distance and how to orient the test device for testing

--OET response sent on Mar 27 2009 10:18AM--

Please provide clarification for the following:

- 1) Samsung letter
 - a) item 1 indicates - WiMax data traffic occur for 9 second - do they mean if there is no transmission for 9 seconds the device would go into idle mode?
 - b) In the idle state, device does not emit any transmit signal outward - the additional info provided in the 802.16e attachment (received through email) indicates the device can or may need to perform location updates. Please clarify if the device is restricted from responding to the periodic 9-second paging messages; if not, the location update transmission duration need to be identified for consideration.
 - c) The grantee should clearly identify that the device will time-out and go into idle mode after a specific period of non-transmission; and the maximum duration and interval of location updates (if applicable) are clearly identified so that we can determine body exposure conditions are negligible. The WiMax info attachment identifies idle mode as a de-registration state, a clear definition of the idle mode implemented for this device is necessary to clarify whether it is no transmission or possibly some transmission.
- 2) Please clarify how the idle mode works for 802.11b/g for ensuring body exposure conditions are negligible or if other time-out mechanisms may apply.
- 3) Assuming items 1 and 2 above are properly addressed, please include the necessary user instructions to identify this device is for hand-held use only, requiring both hands to operate and are held or maintained at least 5 cm from the user body or bystanders to satisfy FCC RF exposure compliance requirements. The idle mode or other mechanisms (e.g. lid open/close conditions) implemented for this device can ensure that body exposure is negligible.
- 4) In the IdleMode attachments, it is indicated that - 6.3.24 MS idle mode (optional). Please clarify whether this is an optional feature or a permanent requirement implemented for this device.
- 5) The dimensions specified for the device (127.0 x 80.5 x 15.9 mm) do not seem to fully support the antenna separation distances in the diagram. It is unclear if the antenna locations indicated on the diagram are on the lid or the base of the device and if the lid is open or closed. Please identify the antenna locations with respect to the lid and base of the device. The descriptions below the diagram are partially in Korean, please translate accordingly.

If our understanding and assumption are correct, it is likely that SAR for the hand is not required and SAR for the body is also not necessary when the device fully enters into idle mode for both WiMax and 802.11b/g with an acceptable transmission time-out interval to ensure body exposure is negligible. However, the above need clarification in order for us to make such decisions to justify SAR is not required for both hand and body. The above must be fully explained in the RF exposure exhibit, in place of the usual RF exposure report for equipment certification. Information such as if WiMax is TDD and specific values for the T46 timer values would be additional information that can be included in the substitute SAR report to identify negligible body exposure conditions. Applicable grant conditions may also apply, which will need to be coordinated for TCB approval.

We have inserted the additional files (IdleMode and Declaration) received through separate email into this inquiry to keep all info in one place. Please ignore the other two PDF files: GeneralDeclaration1. The files are identical but repeated due to server problems.

--OET response sent on Apr 2 2009 9:46AM--

Please note that relevant manual excerpt to be included in the users manual, as stated in the reply, has not been included in the last response. The instructions should clearly identify the device is designed for hand-held use only, both hands are required for operation, there is no voice mode transmission, device will time-out and enter idle mode when there is no keypad input for 8-9 seconds and it should maintain at least 5 cm separation from the user's body during hand-held use (200 mW WiMax transmitting antenna is on the edge closest to the body during use).

Since the device does not specifically provide any body-worn accessories, instead of "pocket or leather case" use, the final declaration letter from Samsung should identify these as body-worn transmission conditions. A copy of the declaration should be included in the

equipment certification filing - in the attestation statements exhibit. The RF exposure exhibit should reference this attestation and include other relevant information - device dimensions and antenna locations (with respect to keypad and lid positions), operation with both hands required, idle mode configurations for both WiMax and Wi-Fi are permanent features, simultaneous transmission conditions, applicable SAR evaluation exclusions for the Bluetooth, WiMax and Wi-Fi SAR exclusions for hand and body etc. The relevant manual instructions should also be identified in the RF exposure exhibit. Note: include both WiMax and Wi-Fi for item 3 of the declaration letter.

Please identify the FCC ID for this device. and include this KDB tracking number on the 731 Form for equipment certification.

Upon receiving the manual instructions, we will provide applicable grant conditions for you to proceed with the filing with the applicable SAR exclusions.

--OET response sent on Apr 3 2009 4:28PM--

There is another "pocket or leather case" indicated near the beginning of the declaration letter instead of body-worn. This is still missing: "Note: include both WiMax and Wi-Fi for item 3 of the declaration letter." Please do not forget to change these in the final letter and then upload as an attestation exhibit.

Please follow earlier instructions to prepare RF exposure exhibit and inform the TCB to insert the follow as part of the grant condition; in addition to whatever grant conditions that are normally required.

"Device is for hand-held use only, requiring both hands to operate, with idle mode to disable normal transmission after 8 - 9 seconds without input from the keypad. Users must be provided with operating instructions to maintain at least 5 cm from the body during normal use to satisfy RF exposure compliance requirements."

[Enter any additional comments below:](#)

Attachment List:

[IdleMode](#)
[GranteeDeclaration1](#)
[GranteeDeclaration1](#)
[GranteeDeclaration1](#)

Please send any comments or suggestions for this site to [OET Systems Support](#)

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