RESEARCH IN MOTION

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Our Ref: 04063-CERT-CORRESP_22109 March 7, 2002

Ms. Diane Poole
Federal Communications Commission,
Equipment Authorization Division
Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21045

Subject: Response to the FCC CRN 22109 for additional information on BlackBerry World Band Wireless handheld FCC ID: L6AR6020GW, 731 CN **EA816211**

The following addresses the requests for information in **CRN 22109**, dated February 27, 2002.

EMC
ITEM 1:
The frequency range stated in the Tech Spec provides the band edge of the licensed frequency block. However the testing is performed in the centre of the extreme low and high channels. The low edge of the frequency block is 200 kHz below the centre of the low channel to allow for the channel roll-off. The nearest 100 kHz below the centre of the low channel takes into account the 3 dB roll-off and the farthest 100 kHz takes into account the 26 dB channel roll-off.

Similarly the high edge of the licensed frequency block is 200 kHz above the centre of the high channel for the same reason as the low channel.

SAR
ITEM 1:
Revised safety statement:
"To maintain compliance with FCC RF exposure guidelines, use only RIM supplied or approved accessories. When carrying the wireless handheld while the radio is turned ON, use the RIM holster (ASY-03991-001) that has been tested for compliance. Use of non-RIM approved accessories may violate FCC RF exposure guidelines."

There is only one RIM accessory that holds the RIM wireless handheld on the belt. It is referred to as a holster in our marketing literature and User's Guide. This holster (ASY-03991-001) has an integral swivelling belt-clip on the back (mentioned in User's Guide on page 11). There is no provision for attaching a belt-clip directly to the back of the handheld. The attachment titled ITEM 14 shows photos of the holster and handheld.

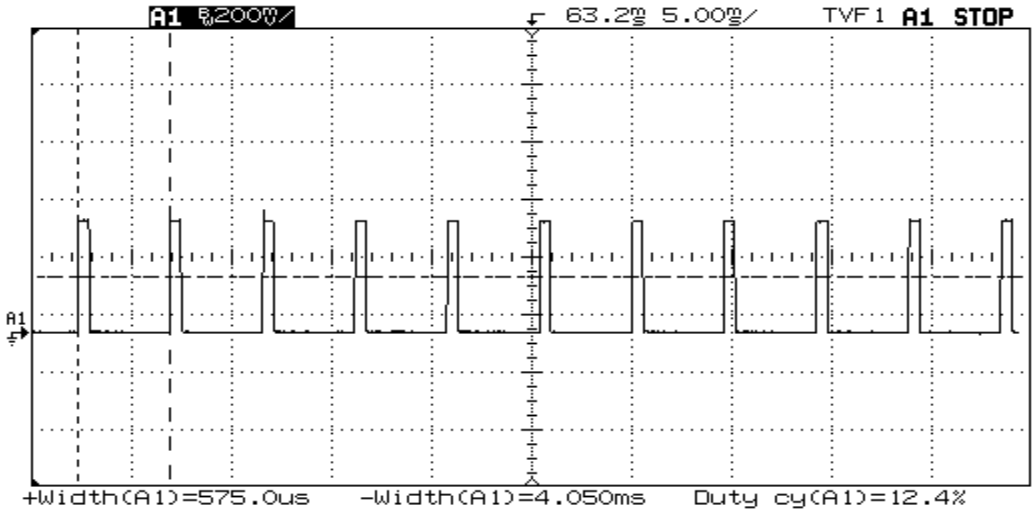
ITEMS 2-3:
Refer to the attached APREL Laboratories' response dated 1st March 2002.

ITEM 4:
The range of the output power is controlled to sixteen discrete levels (15 to 0) which are equivalent to 0 to 30 dBm respectively in steps of 2 dB. This is a dynamic adjustment carried out under the command and supervision of the base station.

A Wavetek 4400M Base Station Simulator was used to establish connection, select mode of operation and set power level to mobile station. The PCS 1900 mode was selected and the power level 0 (30dBm) was set

on the Wavetek BSS to command and control the handheld to use the PCS mode and transmit at the maximum power of 30dBm during the testing.

ITEM 5:
The BlackBerry World Band Wireless handheld is a GPRS Multislot Class 1 device, i.e. it operates with one uplink slot and one downlink slot. Consequently, data operation has the same temporal characteristics as voice. Below is an oscilloscope plot showing the TDMA burst with, and burst repetition rate for, both voice and GPRS.



ITEM 6:
Refer to the attached APREL Laboratories' response dated 1st March 2002.

ITEM 7:
The Equipment Code in the Form 731 was incorrectly selected. It should be changed to "PCE – Part 24 Licensed Portable transmitter held to ear".

ITEM 8:
Refer to the attached APREL Laboratories' response dated 1st March 2002.

ITEM 9:
The BlackBerry World Band Wireless Handheld can be used for data (GPRS) and voice (GSM) communications. The GSM/GPRS network uses an 8 time-slot frame implementation of time-division multiple access. In the GSM mode one uplink time-slot per frame is used. The handheld is a GPRS Multislot class 1 device restricted to operating with only one uplink time-slot per frame, i.e. the maximum transmit duty factor will be 12.5% (1/8 timeslot).

Both data and voice are digital and use a two-level Gaussian Minimum Shift Key (GMSK) frequency modulation. Since the handheld only uses one uplink slot, the BW and duty cycle for both data and voice are the same. Consequently, separate SAR tests are not needed for the GPRS mode.

ITEM 10:
The 1.6 W that is indicated in the Op. Desc. is the Effective Isotropic Radiated Power (EIRP). EIRP is the radiated power referenced to an Isotropic radiator measured at a distance of 3 m in an Open Area Test Site (OATS) using the substitution method as outlined in the EMI report.

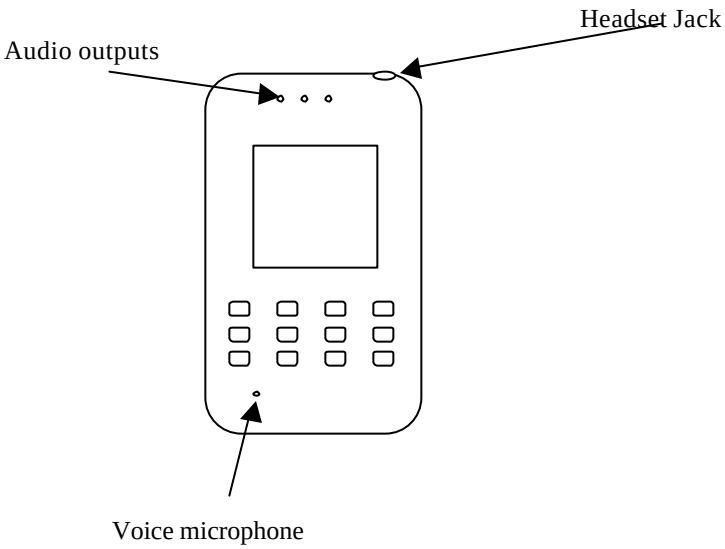
However, the power level of 30.36 dBm (1.09 W) indicated in the SAR report is the measured peak conducted power. Our understanding is that the FCC lists the EIRP level on the grant which is 1.6 W in our case and not the conducted power. Therefore we request that the EIRP be listed on the grant.

ITEM 11:
Information only.

ITEMs 12-13:
Refer to the attached APREL Laboratories' response dated 1st March 2002.

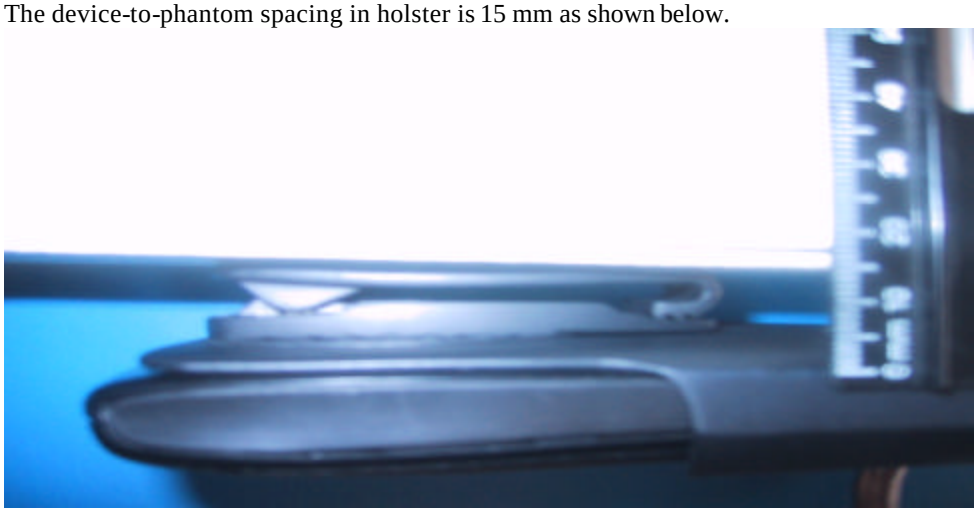
ITEM 14:
Information only.

ITEM 15:
Below is the sketch of the BlackBerry handheld with pointers showing audio output, microphone and headset jack.



ITEM 16:
Refer to the attached APREL Laboratories' response dated 1st March 2002.

ITEM 17:
The device-to-phantom spacing in holster is 15 mm as shown below.



ITEM 18:

The holster, with integral belt-clip, is designed to allow the BlackBerry handheld to slide in only one way, and that is with the keyboard side facing the user (facing the belt-clip) while in the holster. This positioning has the benefit of protecting the keypad and the large LCD from damage.

Attached are photos of the holster with the handheld keyboard side facing the user and the keyboard side facing away from user. The Photo to the right shows that the device with keyboard away from the user does not fit into the holster.

I trust that your questions have been fully answered, however if further clarification is required please do not hesitate to contact the undersigned.

Sincerely yours,

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1st March 2002

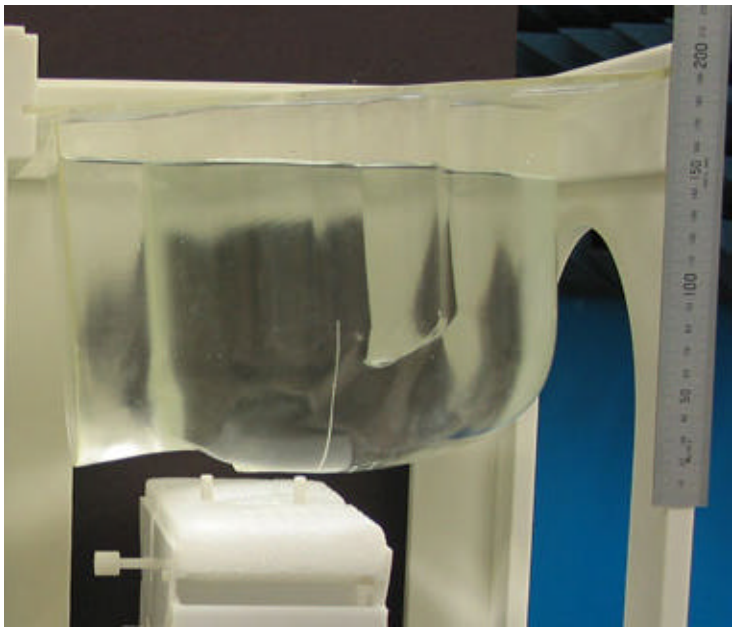
Reference: - FCC Application for FCC ID L6AR6020Gw

Mr Cardinal,

In support for the grant application "RIMB-BlackBerry R6020GW-3841" I have reviewed the questions submitted to you by the FCC and would like to offer the following information in support for the above mentioned application.

2) State and demonstrate liquid depth for all tests.

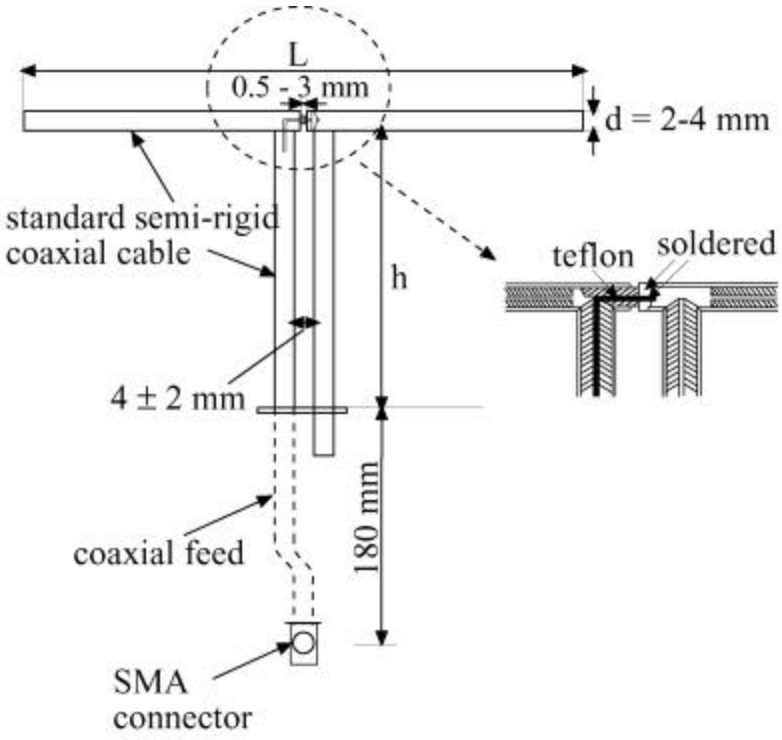
The tissue depth for the tests conducted exceeded the recommended depth contained within Supplement C and IEEE P-1528. For frequencies above 1 GHz it is recommended that the liquid depth exceed 10 cm. The depth of the tissue used during the SAR measurement process was above 15 cm. Figure 1 page 13 "Set-up" provides an image of the actual set-up used during the device analysis. The phantom can contain tissue up to a depth of 18-cm. The image below demonstrates the standard tissue depth used for device analysis at APREL Laboratories, and can be used as a visual aid for comparison with the image used on page 13 of the SAR report.



3) Confirmation that a probe conversion factor of 7.9 was used for the body measurements as suggested on page 13 of 29. If so please justify this value as is varies from values stated in the probe calibration certificate.

The figure contained within table 3 page 13 for the conversion factor used during the test process is a type error. The actual conversion factor used was 8.1 as per the calibration results for the probe used for this project.

6) Critical physical dimensions of the validation dipole.



The dipole used for system validation is in accordance with the description contained within IEEE P-1528. The diameter for the structure is 3.6 mm.

Frequency (MHz)	Length (mm)	Height (mm)
1900	68.0	39.5

8) Frequency for power measurements made on page 8 of 29.

Power measurements were made at the start and end of each SAR test. During the measurement process a predefined power level can be set with the communication test set which will cause the call to be dropped if the output power falls below the expected level. The frequency for the power measurements is dependent on the channel selected during the SAR analysis. The table below provides the frequency and channel number associated with the high, mid, and low requisite.

RF Channel	Frequency (MHz)	Expected Tx Power
512 (Low)	1850.2	30 dBm
661 (Mid)	1880	30 dBm
810 (High)	1909.8	30 dBm

12) Please describe explicitly how 12.5% duty cycle was used to go from raw SAR to final reported peak spatial average SAR of 1.28 W/kg head, 2.2 hand, and 0.32 body.

The duty cycle for the device is controlled via software and can never be altered, as per the PCS protocol. The system is set to sample over a specified time period, which corresponds with the duty cycle of the device under test. A trigger function starts the sample period for the measurement. The RMS of the power is then averaged over the full cycle to the point where the next pulse is sent by the device and then placed into the matrix used for the SAR calculation.

13)Need more description of App. A Fig 6. Is that "z-axis scan" at device peak SAR location? We expect curve to follow a mostly exponential rolloff. Why does head curve have a smooth "step" in it?

This is only a graphical representation of the field density at the area where the maximum SAR is located. The smoothing is generated by a function within the software. The purpose of this is to show the density of the field changes (reduces) in the 'Z" axis when the probe moves further away from the surface of the phantom.

16) Need SAR test setup photo for left-side test.

On page 13 of the SAR report three images are presented to show the set-up used for the SAR analysis. The larger image shows the device positioned under the Left Hand SAM phantom, with the additional two images (smaller) providing the positions used for the tilt and touch permutations. The top image shows the device set-up for the touch analysis using the Left Hand Sam phantom, where the bottom image shows the set-up used for the tilt analysis for the Right Hand SAM phantom. Both phantoms are shown in the set-up image where the tissue used during the analysis is contained within the Left Hand SAM phantom. Consequently the tissue depth is clearly visible which was used during the device analysis.

If you require further information please do not hesitate to contact me in the first instant.

Sincerely,

Stuart Nicol
Director Product Development,
Dosimetric R&D.
APREL Laboratories.