



Tim Dwyer <rfspectrum@gmail.com>

Alvarion Ltd., FCC ID: LKT-BNETB-58, Assessment NO.: AN09T9380, Notice#1

4 messages

tim.dwyer@ccsemc.com <tim.dwyer@ccsemc.com>

Wed, Jul 22, 2009 at 10:45 PM

To: tom@tncokenias.org
Cc: tim.dwyer@ccsemc.com

Hello Tom,

Review of this application is complete. The issues below are almost identical to those raised in the previous application. In some cases, the wording has been re-phrased.

Q1: Because possible modes of operation are not described in technical description, it is impossible to fully review this device against the requirements.

-Please describe all modes of operation possible for this product. For example, describe whether the device operates solely in Point to Point mode or in other modes and if so provide a details of other modes.

-Describe how the output power is delivered to the antennas, simultaneously or separately to each antenna, and whether on the same or different channels with same or different information.

-Describe whether operation is only in spatial multiplexing MIMO mode or if it also can operate in other legacy modes.

The issues listed below are same basic issues that were raised in the previous filing. Email on 7/13 recommended reviewing the applications for these issues, but no revised or new information has been received to date for this application.

Q2: Combined output power is required to be listed on the grant for MIMO operation. Output power and PSD measurements in the test report were shown only for each chain separately. Combined output power and PSD were not shown or used to determine maximum power for MIMO operation. The maximum single chain power is listed in the application. Please provide a revised report or report addendum to show maximum combined power and PSD for MIMO and other operation modes with simultaneous and or single chain output.

Q3: Measurements for 4 bandwidth modes are shown in the test report. Only 3 line items are listed in the application form. It appears that the 10 MHz BW information was not entered in the application form.

Q4: Since operation in P2P configuration is intended, 15.247(b)(4)(iii) and 15.247(c)(1)(iii) require information concerning responsibilities for P2P operation to be contained in the user manual. Please add this information to the user manual. This requirement is clearly and unambiguously stated in the rules. If you believe that in this case, the requirement is not applicable, then this involves interpretation of the rules which must be accomplished by submittal of KDB inquiry. Per FCC requirement, TCB's are not allowed to interpret the rules.

Q5: Please provide revised MPE evaluation if external antennas will be installed with antenna to antenna separation distance less than the MPE distance. If antennas must be installed only with antenna to antenna separation distance greater than the MPE distance, please confirm that this information will be provided to installers.

Q6: The internal dual antenna appears to be driven simultaneously by both chains in MIMO and possibly in other modes. Please provide details about modes in which the dual antenna is driven by both chains simultaneously and provide revised MPE evaluation. This is a co-located antenna configuration. MPE evaluation should be consistent with combined maximum power levels in item Q2, i.e. maximum combined output power. The MPE evaluation is not specific, but appears to be based on output only from a single chain.

Q7: Professional installation is required for this product. Installers must be provided with power and antenna gain limits for complying with the rules. This information is not shown in the user manual. Please provide a clear list of maximum power, antenna gain and mode (MIMO/SISO) configuration information or other descriptive information to explain how this requirement will be met and confirm that professional installers will be provided with this information.

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Best regards,

Tim Dwyer
Technical Reviewer

Thomas Cokenias <tom@tncokenias.org>
To: Tim Dwyer <tim.dwyer@ccsemc.com>

Wed, Jul 29, 2009 at 10:05 AM

Hi Tim,

Thanks for the talk yesterday. I have reviewed your questions again with Alvarion and believe I have all the information you requested. Answers follow questions.

I will be at CCS 9 AM CA time and will update the 731 form soon after that to include 10 MHz BW. If you see anything missing or have any other questions please call my cell 650 302 0887 and I will get you what you need asap.

best regards

Tom
cell 650 302 0887

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ALVARION: The radio operates in MIMO mode, power delivered to each antenna simultaneously on same channel

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ALVARION: Only MIMO mode is supported. A new technical description 4Technical is included in the attached zip file

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ALVARION/Tom The two antennas qualified for this radio are dual polarity types, one a dual polarity dish antenna, the other a dual polarity flat panel antenna. The H polarized and V polarized antennas are in the same single package, so total exposure is $GdBiVert + PdBmVert + GdBiHor + PdBmHor$. Since gains are equal in H and V sections, and since each TX chain delivers the same amount of power to each antenna, total eirp = $GdBi + Maximum\ combined\ output\ power\ dBm$.

From test report addendum, the maximum combined output power is 25.6 dBm at 5845 MHz, 5 MHz EBW. Maximum antenna gain is 28 dBm (dish)

For 25.6 dBm and 28 dBi, MPE distance is calculated as 135 cm. User manual requires minimum separation of 2m, about 1.5xMPE distance

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ALVARION/Tom: This radio does not have any internal antennas, only external antennas. Q6 appears to be a copy and paste from another product with similar certification application issues.

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ALVARION/Tom: Table 2-4 on page 33 of Part 1 installation manual has a table with the maximum combined output power allowed for this product.

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Best regards,

Tim Dwyer
Technical Reviewer

5 attachments



BNB 300 5.pdf
564K



BNB300_Technical User Manual_part1-1.pdf
1301K



BNB300_Technical User Manual_part2.pdf
1308K



RFxBNETB.pdf
37K



4Technical descrip-1.pdf
31K

Tim Dwyer <tim.dwyer@ccsemc.com>
To: Thomas Cokenias <tom@tncokenias.org>

Thu, Jul 30, 2009 at 3:50 PM

Tom,

Re Q6, the technical description submitted initially stated:

"20/5/09

BreezeNETB300

LKT-BNETB-58

Either **integrated** or external dual-polarization antenna is connected to RF card through two UFL type connectors using two RF cable assemblies."

I note that in the revised technical description this statement has been changed and that all antennas are dual polarized and so all antennas are subject to co-located antenna exposure conditions.

However, the user manual still refers to an integrated antenna. The internal photo exhibit shows a view with two ethernet connectors, internal disconnected SMA connectors, and no external RF connectors in the housing. I do note that the view of the empty housing shows external RF connectors, but the view with the PC board installed is obviously not the same housing.

I understand now from your statement above that all antennas to be used for this product are "external", however the information supplied in the exhibits is not consistent with the descriptions elsewhere. Please explain if there is something I am overlooking or

provide revised exhibits so that the application is consistent throughout.

The remaining items and newly revised exhibits have been reviewed and are acceptable. Pending reply to the question above, this application will be forwarded for certification.

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Tim Dwyer
Quasi-Peak Wireless
766 Pucker Street
Coventry, CT 06238 USA
(860) 558-1791
email: tdwyer@quasi-peak.com
timothy_dwyer@ieee.org
web: www.quasi-peak.com

Thomas Cokenias <tom@tncokenias.org>

To: Tim Dwyer <tim.dwyer@ccsemc.com>

Cc: Avner Ruta <avner.ruta@alvarion.com>

Fri, Jul 31, 2009 at 10:08 AM

Hi Tim,

Answer to Q6 follows question.

best regards

Tom

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On Jul 30, 2009, at 12:50 PM, Tim Dwyer wrote:

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ANS6 The user manual is correct, there is an optional integrated antenna. It is a flat panel type that bolts onto the radio.

Attached is a photo sent to me today showing the completely assembled radio with the sheet metal top removed, showing how internal cables were routed for external antenna use. Also attached is an updated version of the theory of operation which clarifies the product supports integral and external mount antennas.

Testing was only performed for external antennas. The integral antenna is same type, gain, and beamwidth. I don't think FCC will allow leveraging the external data to the integral antenna, if yes that is good if not it will be added via class 2 permissive change.

a. (Avner) The integral and external antennas are of the same type, flat panel dual polarization, 9 degree beam width, dual polarized, gain 23 dBi, per section 2.7.2 of manual. Alvarion conducted tests with external antenna flat panel and dish antenna. Since they had to change the antennas during tests, the external antennas were chosen so that test time could be minimized.

b. (Avner) The flat panel antennas are two different antennas. The integral antenna serves also as a cover to the unit, the antenna bolts to the radio and the metal surface of the back of the internal antenna covers the opening showed in the photo. When external antenna used, the cover to the unit is a metal plate cover

c. (Avner) Connection from RF module to antennas, is made by two RF cables, terminated with SMA connectors. Each connector connects to V or H connector on antenna. In case of integral antenna, the mating connector is SMA type. In case of external antenna, the two RF cables from RF module, connects to two N type connectors on the housing.

Ok, that's our final answer, unless you have other questions.

I start my commute in at 7:30AM my time, you can reach me on my cell.

best regards

Tom

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Technical Reviewer

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timothy_dwyer@ieee.org
web: www.quasi-peak.com

2 attachments

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