


Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#1 [Inbox](#)

★ from **"tim.dwyer@ccsemc.com"** <tim.dwyer@ccsemc.com> [hide details](#) May 2 

to tom@tncokenias.org
cc tim.dwyer@ccsemc.com
date May 2, 2007 3:36 PM
subject Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#1

Hi Tom,

This is only a reminder that a preliminary administrative review has been performed and that the full review cannot be completed until the DFS report is submitted. I know you are aware of this already.


Please send me an email when the DFS report is submitted, or email the report directly to me.

Thanks and best regards,

Tim Dwyer

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 may result in application dismissal and 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 e-mail address listed below the name of the sender.

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★ from **Thomas Cokenias** <tom@tncokenias.org> [hide details](#) May 21 

to "<tim.dwyer@ccsemc.com>" <tim.dwyer@ccsemc.com>
date May 21, 2007 5:04 PM
subject Re: Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#1

Hi Tim,

Here is the DFS report.

best regards

Tom

On May 2, 2007, at 12:36 PM, <tim.dwyer@ccsemc.com>
<tim.dwyer@ccsemc.com> wrote:

> Hi Tom,
>
> This is only a reminder that a preliminary administrative review
> has been performed and that the full review cannot be completed
> until the DFS report is submitted. I know you are aware of this
> already.
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> Please send me an email when the DFS report is submitted, or email
> the report directly to me.

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> Thanks and best regards,

>
> Tim Dwyer

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> address listed below the name of the sender.

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★ from **Thomas Cokenias** <tom@tncokenias.org>

[hide details](#) May 31

[Reply](#)

to tim.dwyer@ccsemc.comtim.dwyer,

"ccsemc.com" <>

date May 31, 2007 2:24 PM

subject Re: Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#1

Hi Tim,

DFS report sent as attachment to Notice 2 of this filing.

best regards

Tom

Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#2 [Inbox](#)

★ from "tim.dwyer@ccsemc.com" <tim.dwyer@ccsemc.com>

[hide details](#) May 14

[Reply](#)

to tom@tncokenias.org

cc tim.dwyer@ccsemc.com

date May 14, 2007 5:20 PM

subject Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#2

Hello Tom,

As availability of the DFS report appears to be delayed, the technical review of this application, to the extent possible without the DFS report, has been completed. The review issues are listed below. If you have questions, please email or call.

AN07T6766 Alvarion LKT-VL-54

Q1: Confidentiality was requested on the application form. Please provide a confidentiality request letter according to 0.459.

Q2: The operation theory describes operation with 10, 20, and 40 MHz bandwidths. The test report and other documents include test data and information only for 10 and 20 MHz bandwidths. Please explain, revise the operation theory, or provide additional test data.

Q3: An apparent typographical error on page 73 of the test report shows a 120dBi antenna. Please revise.

Q4: The test report or associated documentation does not appear to include information regarding compliance with the EIRP PPSD limit of 17 dBm. Please explain or provide additional evaluation results. This may be addressed in Q5 following.

Q5: It is clear that the user manual is intended to span multiple regions and configurations. The user manual submitted does not provide sufficient detail to enable installers and users to select and configure acceptable FCC model, antenna, maximum output power, and installation condition combinations. Please provide a revised user manual clearly showing acceptable model, FCCID, antenna, maximum output power configurations and associated installation conditions. Acceptable configuration information for FCCID: LKT-VL-54, including maximum 20 dBi antenna and related power, and information relevant to other FCCID(s) addressed by this user manual should be included.

Q6: The FCC Radiation Hazard Warning statement includes reference to 28 and 32.1 dBi antennas, but the configurations or conditions for operation with such antennas are not described elsewhere in the manual. Please revise or explain.

Q7: This review has been performed prior to receipt of the DFS test report. It is possible that an additional notice will be sent upon receipt and review of the DFS report.

Q8: In connection with the DFS evaluation, please revise the attestation letter, or provide an additional letter verifying that the device does not have Ad Hoc capabilities on non-US frequencies and on DFS frequencies

Best regards,


Tim Dwyer

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to the e-mail address listed below the name of the sender.

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 **Thomas Cokenias** to tim.dwyer

[show details](#) May 31  [Reply](#)

Hi Tim,

I have Alvarion working on the answers I can't supply right away. I have a couple of questions re your questions, also attached is DFS report.

>
> Q4: The test report or associated documentation does not appear
> to include information regarding compliance with the EIRP PPSD
> limit of 17 dBm. Please explain or provide additional evaluation
> results. This may be addressed in Q5 following.

ANS 4. This is in section 10.6 of the test report, the display line shows the equivalent radiated field strength limit at 1m for -27dBm eirp. Do you need more than what is provided here?

>
>
> Q6: The FCC Radiation Hazard Warning statement includes reference
> to 28 and 32.1 dBi antennas, but the configurations or conditions
> for operation with such antennas are not described elsewhere in the
> manual. Please revise or explain.

ANS 6 The user manual calls for a 2m separation for antennas with less than 28 dBi gain, which covers this application with the 20 dBi gain. Is this ok?

>
> Q7: This review has been performed prior to receipt of the DFS
> test report. It is possible that an additional notice will be sent
> upon receipt and review of the DFS report.

ANS 7 DFS report attached

>
> Q8: In connection with the DFS evaluation, please revise the
> attestation letter, or provide an additional letter verifying that
> the device does not have Ad Hoc capabilities on non-US frequencies
> and on DFS frequencies

ANS 8 Letter attached

I hope to have the other information to you in a day or two.


Best regards

Tom

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 **Thomas Cokenias** to tim.dwyer

[show details](#) Jun 1 (5 days ago) 

[Reply](#)

Hi Tim,

Here are answers to the other questions for Notice 2

best regards

Tom

On May 14, 2007, at 2:20 PM, <tim.dwyer@ccsemc.com>

<tim.dwyer@ccsemc.com> wrote:

> Hello Tom,

>
> As availability of the DFS report appears to be delayed, the
> technical review of this application, to the extent possible
> without the DFS report, has been completed. The review issues are
> listed below. If you have questions, please email or call.

> **AN07T6766** Alvarion LKT-VL-54

> Q1: Confidentiality was requested on the application form.
> Please provide a confidentiality request letter according to 0.459.

ANS1 Confidentiality request is attached

> Q2: The operation theory describes operation with 10, 20, and 40
> MHz bandwidths. The test report and other documents include test
> data and information only for 10 and 20 MHz bandwidths. Please
> explain, revise the operation theory, or provide additional test
> data.

ANS2 The theory of operation covers different configurations possible with the circuitry, common to more than one FCC ID (LKT-VL-53C and LKT-VL-54). For the -VL-54 product only the 10 and 20 MHz modes are operational.

> Q3: An apparent typographical error on page 73 of the test report
> shows a 120dBi antenna. Please revise.

ANS 3 Report data page with correction attached.

> Q4: The test report or associated documentation does not appear
> to include information regarding compliance with the EIRP PPSD
> limit of 17 dBm. Please explain or provide additional evaluation
> results. This may be addressed in Q5 following.

ANS 4 I believe the level required is -27 dBm out of band for 5.4 GHz operation. The test report shows radiated emissions data take for out of band emissions. At 3m a -27 dBm eirp is equivalent to a field strength $95.24 - 27 = 68.24$ dBuV/m. Measurements were taken at 1m so limit is $68.24 + 9.54 = 77.8$ dBuV/m. Data shows out of band

emissions comply with this limit.

>
> Q5: It is clear that the user manual is intended to span multiple
> regions and configurations. The user manual submitted does not
> provide sufficient detail to enable installers and users to select
> and configure acceptable FCC model, antenna, maximum output power,
> and installation condition combinations. Please provide a revised
> user manual clearly showing acceptable model, FCCID, antenna,
> maximum output power configurations and associated installation
> conditions. Acceptable configuration information for FCCID: LKT-
> VL-54, including maximum 20 dBi antenna and related power, and
> information relevant to other FCCID(s) addressed by this user
> manual should be included.

ANS5 Updated user manual attached, see p 40 and 42. This is draft 3
of the manual.

>
> Q6: The FCC Radiation Hazard Warning statement includes reference
> to 28 and 32.1 dBi antennas, but the configurations or conditions
> for operation with such antennas are not described elsewhere in the
> manual. Please revise or explain.

ANS6 Updated user manual paragraph corrected, see p 11

>

3 attachments — [Download all attachments](#)

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Complete report with Typo Correction p73 FCC ID: LKT-VL-54, Assessment NO.: AN07T6766 [Inbox](#)

★ from **Thomas Cokenias** <tom@tncokenias.org>

[hide details](#) Jun 3 (4 days ago)

 [Reply](#)

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

date Jun 3, 2007 2:36 PM

subject Complete report with Typo Correction p73 FCC ID: LKT-VL-54, Assessment NO.: AN07T6766

Hi Tim,

Here's the complete test report with the correction to p73 (20 dBi instead of 120 dBi)

Also applies to **2514A-VL54, Assessment NO.: AN07I2033**

best regards

Tom

07-13898 BA VL 5.4.pdf



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Complete report with Typo Correction p73 FCC ID: LKT-VL-54, Assessment NO.: AN07T6766 [Inbox](#)

★ from **Thomas Cokenias** <tom@tncokenias.org>

[hide details](#) Jun 3 (3 days ago)

 [Reply](#)

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

date Jun 3, 2007 2:36 PM

subject Complete report with Typo Correction p73 FCC ID: LKT-VL-54, Assessment NO.: AN07T6766

Hi Tim,

Here's the complete test report with the correction to p73 (20 dBi instead of 120 dBi)

Also applies to **2514A-VL54, Assessment NO.: AN07I2033**

best regards

Tom

07-13898 BA VL 5.4.pdf



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Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#3 [Inbox](#)

☆ from "tim.dwyer@ccsemc.com" <tim.dwyer@ccsemc.com>

[hide details](#) Jun 11

[Reply](#)

to tom@tncokenias.org

cc tim.dwyer@ccsemc.com

date Jun 11, 2007 3:43 PM

subject Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#3

Hi Tom,

There are still a few unanswered issues for this one. The same issues may be present in the other applications, but I will send separate notices as applicable. I am finding these are taking a bit longer to review given the time that has passed since the original review.

Q4 Original Item: The test report or associated documentation does not appear to include information regarding compliance with the EIRP PPSD limit of 17 dBm. Please explain or provide additional evaluation results. This may be addressed in Q5 following. Response referred to out of emissions. Question was for in band PPSD limit per 15.407(a)(2). See additional question below.

Q4 Response: ANS 4 I believe the level required is -27 dBm out of band for 5.4 GHz operation. The test report shows radiated emissions data take for out of band emissions. At 3m a -27 dBm eirp is equivalent to a field strength $95.24 - 27 = 68.24$ dBuV/m. Measurements were taken at 1m so limit is $68.24 + 9.54 = 77.8$ dBuV/m. Data shows out of band emissions comply with this limit

Q4 Additional Comment: The response included reference to out of band emissions, while the question referred to the in-band PPSD limit per 15.407(a)(2). The defacto PPSD EIRP limit is $11 \text{ dBm} + 6 \text{ dBi} = 17 \text{ dBm}$. The plots on pages 36-41 of the report show PPSD's ranging from 4.34 to 8.404 dBm. These levels, when combined with the 20 dBi antenna gain, would exceed the 17 dBm EIRP limit. The test report and associated documentation do not provide measurement data or statements regarding compliance with this requirement. Please provide a brief explanation of how this requirement will be met.

15.407(a)(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For future reference, the test report should, in addition to plots, include a tabulation showing worst case measurement data (or all measurements) with calculations and adjustments applied for frequency band, antenna gain, modulation etc. with limits for the applicable rule section. Providing data in this format will help to expedite the review process.

Q5 Original: It is clear that the user manual is intended to span multiple regions and configurations. The user manual submitted does not provide sufficient detail to enable installers and users to select and configure acceptable FCC model, antenna, maximum output power, and installation condition combinations. Please provide a revised user manual clearly showing acceptable model, FCCID, antenna, maximum output power configurations and associated installation conditions. Acceptable configuration information for FCCID: LKT-VL-54, including maximum 20 dBi antenna and related power, and information relevant to other FCCID(s) addressed by this user manual should be included.

Q5 Response: ANS5 Updated user manual attached, see p 40 and 42. This is draft 3 of the manual.

Q5 Additional: The user manual states a maximum antenna gain of 27 dBi, but no acceptable antennas are listed with gain higher than 17 dBi. To be consistent with the test report, the maximum allowed antenna gain would be 20dBi. In addition to configuration information provided in the manual, please provide a separate antenna document listing all acceptable antennas both integral and detachable with antenna gain and type for each antenna. Please note that the highest gain model of each antenna type must be tested.



Q8 Original: In connection with the DFS evaluation, please revise the attestation letter, or provide an additional letter verifying that the device does not have Ad Hoc capabilities on non-US frequencies and on DFS frequencies. Attachment indicated in email, but no attachment.

Q8 Additional. The email response indicated an attached attestation letter, but there was letter attached. DFS report, confidentiality letter, and user manual were attached.

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 may result in application dismissal and 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 e-mail address listed below the name of the sender.

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☆ from **Thomas Cokenias** <tom@tncokenias.org>

[hide details](#) Jun 12  [Reply](#) 

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

date Jun 12, 2007 7:09 PM

subject Re: Alvarion Ltd., FCC ID: LKT-VL-54, Assessment NO.: AN07T6766, Notice#3

Hi Tim,

Answers follow questions.

On Jun 11, 2007, at 12:43 PM, <tim.dwyer@ccsemc.com>

- Show quoted text -

ANSWER 4 Understood, I misread the original item. Attached please find antenna port conducted ppsd data, taken at the maximum power allowed for the antenna gain and EBW used. The maximum psd allowed in the 5.4 GHz band is

$11 \text{ dBm} - (\text{gain, dBi} - 6 \text{ dB}) = 11 - (20 - 6) = -3 \text{ dBm/MHz}$ for a 20 dBi antenna.

Data shows compliance with this limit.

- >
- > Q5 Original: It is clear that the user manual is intended to span
- > multiple regions and configurations. The user manual submitted
- > does not provide sufficient detail to enable installers and users
- > to select and configure acceptable FCC model, antenna, maximum
- > output power, and installation condition combinations. Please
- > provide a revised user manual clearly showing acceptable model,
- > FCCID, antenna, maximum output power configurations and associated
- > installation conditions. Acceptable configuration information for

- > FCCID: LKT-VL-54, including maximum 20 dBi antenna and related
- > power, and information relevant to other FCCID(s) addressed by
- > this user manual should be included.
- >
- > Q5 Response: ANS5 Updated user manual attached, see p 40 and 42.
- > This is draft 3
- > of the manual.
- >
- > Q5 Additional: The user manual states a maximum antenna gain of 27
- > dBi, but no acceptable antennas are listed with gain higher than 17
- > dBi. To be consistent with the test report, the maximum allowed
- > antenna gain would be 20dBi. In addition to configuration
- > information provided in the manual, please provide a separate
- > antenna document listing all acceptable antennas both integral and
- > detachable with antenna gain and type for each antenna. Please note
- > that the highest gain model of each antenna type must be tested.

ANSWER 5 Attached is the updated manual, with changes suggested during our conversation earlier today. I have attached the the complete user manual and have uploaded the manual in 3 parts, complete version for your easier review, 3 sections to fit FCC maximum file size

- >
- >
- >
- > Q8 Original: In connection with the DFS evaluation, please revise
- > the attestation letter, or provide an additional letter verifying
- > that the device does not have Ad Hoc capabilities on non-US
- > frequencies and on DFS frequencies. Attachment indicated in email,
- > but no attachment.
- >
- > Q8 Additional. The email response indicated an attached attestation
- > letter, but there was letter attached. DFS report, confidentiality
- > letter, and user manual were attached.

ANSWER 8 The attestation letter re ad hoc operation is attached.

best regards

Tom

- >
- >
- > 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
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Rev 5 Part 1 User Manual and Attestation letter [Inbox](#)

★ from **Thomas Cokenias** <tom@tncokenias.org> [hide details](#) 12:53 am (13 hours ago) 

to Tim Dwyer <Timothy_Dwyer@ieee.org>

date Jun 22, 2007 12:53 AM

subject Rev 5 Part 1 User Manual and Attestation letter

Hi Tim,

Re the manual section, I put the antenna info up front near the FCC and IC statements. I removed the reference to 28 dBi from manual page 5.

The attestation letter covers all the FCC IDs and IC certification numbers.

CCS issued the LKT-VL-53, I sent Helen email reminding her of the DFS sample at FCC that is the gating item.

I'll give you a call tomorrow to make sure these are OK, I need to get back to Alvarion with news.

best regards

Tom

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