

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

From: Fredrik Tuxen [mailto:ft@isg.dk]
Sent: Thursday, October 21, 2004 11:00 AM
To: Chris Harvey
Cc: Alvin Ilarina; Marianne Bosley
Subject: RE: 16305 ISG

Let us stay with the 1 MHz bandwidth and get this case closed for now.

Hope to receive grant soon!

Best regards,
Fredrik Tuxen

From: Chris Harvey [mailto:Chrisharveyemc@comcast.net]
Sent: Thursday, October 21, 2004 14:23
To: Fredrik Tuxen
Cc: 'Alvin Ilarina'; 'Marianne Bosley'
Subject: RE: 16305 ISG

Fredrik, thank you for your rapid response. I have reviewed the 3 documents submitted and find that those 3 items are now closed.

However your request to have the frequency band of 10.505 GHz to 10.515 GHz can not be granted based on the documentation in the application. In accordance with FCC Pt. 15.31(m):

(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Since the documentation only covers the 10.51GHz frequency the grant could only reflect either the center frequency 10.51GHz or the band 10.5095-10.5105 GHz. In order to be able to issue the 10.505 - 10.515GHz, we would need Occupied BW and Radiated emissions (fundamental and spurs) for the device as tuned at 10.505 and 10.515GHz.

I hope that you understand this situation. Please let us know how you would wish to proceed (wait for additional data for full band grant or proceed with single frequency of 1MHz band).

Best regards,

Chris Harvey

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

From: Fredrik Tuxen [mailto:ft@isg.dk]
Sent: Thursday, October 21, 2004 7:09 AM
To: Chris Harvey
Cc: Alvin Ilarina; Marianne Bosley
Subject: RE: 16305 ISG

Hi Chris,

Please find in the attachments:

1. Internal photos including the RF components
2. RF safety minimum 20 cm in user manual (page 4)
3. Updated version of the MPE as requested

Regarding frequency, I understand the requirements for additional frequency testing in order to give grant for 10.500 to 10.550 GHz. Can you detail exactly what measurements would be required to do at what frequencies in order to get this grant. Is it a full testing including conducted emission that is necessary for all frequencies? Would it be OK to test 10.500 and 10.550 GHz only (and then use the test results at 10.510 GHz), or is a test at 10.525 GHz also required?

Can you for our current FCC ID: SFX-TMAN give a grant for 10.505 to 10.515 GHz? If so, please do.

Waiting for your reply

Best regards,

Fredrik Tuxen

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

From: Chris Harvey [mailto:Chrisharveyemc@comcast.net]
Sent: Thursday, October 21, 2004 00:10
To: Fredrik Tuxen; 'Marianne Bosley'
Cc: 'Alvin Ilarina'
Subject: RE: 16305 ISG

OK, here are my comments on your comments on Alvin's comments.....

1. 15.21 issue is closed. The manual statement as it exists complies with the requirement.
2. please submit the remaining internal photos as soon as possible (we

can not issue Grant until we receive the photos). We can accept the revised Confidentiality exhibit to keep the internal photos confidential.

3. I understand how the devices tuning is performed. We are restricted by the FCC requirements that require testing at 3 frequencies if this unit operates at wider than 10MHz. We must have data showing compliance at the lower and upper frequencies of operation, as well as one in the middle.

Even though this device uses an unmodulated carrier, operation at the exact band edges of 10.5 and 10.55 GHz would not likely be allowed since there would be a very small component that could be measured outside of the band (data could be used to show if this would be allowed or not). In any case, the data in the application documents only compliance at 10.510 GHz, so we are currently restricted to issuing a grant with that specific frequency.

Permissive Change Grants are not allowed to be made to change the basic Frequency Determining Circuitry (including factory tuning), so a Grant to include the other bands would need to be filed as a separate application using a different FCC ID number.

The other items requested separately (copied below) are outstanding, but will be closed by tomorrow according to your reply (also copied below).

Best regards,

Chris Harvey
charvey@ieee.org
443-622-3300

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

From: Fredrik Tuxen [mailto:ft@isg.dk]
Sent: Wednesday, October 20, 2004 5:59 PM
To: Chris Harvey
Cc: Marianne Bosley; Alvin Ilarina
Subject: RE: Additional Information for MT#16305 ISG FCC ID: SFX-TMAN

Dear Chris,

Thanks for your feedback, I am happy to hear that there is no big issues.

Re. 1

I will include this in the user manual. You will receive an updated manual tomorrow morning.

Re. 2

I will do so, you will have it by tomorrow morning.

Re. additional frequencies does my comment in my mail 2 minutes ago change your point of view?

I can see that other manufactures of speed-doppler-radars for baseball and cars etc. have managed to get a grant for 10.500-10.55 GHz. How can it be done? What is the acceptable tolerance on the transmitting frequency of 10.510 GHz?

Best regards,

Fredrik Tuxen

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

From: Chris Harvey [mailto:Chrisharveyemc@comcast.net]

Sent: Wednesday, October 20, 2004 23:45

To: Fredrik Tuxen

Cc: 'Marianne Bosley'; Alvin Ilarina

Subject: Additional Information for MT#16305 ISG FCC ID: SFX-TMAN

Dear Fredrik Tuxen,

I have reviewed the entire application and find that there are no issues that would require additional testing. In addition to the items raised by Alvin I have the following items that need to be addressed before Certification can be issued:

1. The RF Safety information in the user's manual must have a statement that the user must maintain a minimum of 20cm separation.
2. The MPE Exhibit must show the formula, variables, and full calculation.
Please revise the MPE exhibit.

Please note that adding additional frequencies for a grant of this device will require a new FCC ID number and new application.

Best regards,

Chris Harvey

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

From: Fredrik Tuxen [mailto:ft@isg.dk]

Sent: Wednesday, October 20, 2004 5:51 PM

To: Marianne Bosley

Cc: Chris Harvey; Alvin Ilarina

Subject: RE: 16305 ISG

Thanks for the preliminary feedback.

Marianne, I have attached an updated confidentiality request.

Comments:

1. Paragraph 15.21

It this not covered by the last two lines on page 3 of the user manual?

"Caution:

Never try to open or repair the device yourself. Any changes or modifications not expressly approved by ISG A/S could void the user's authority to operate the device"

2. Internal pictures of RF modules.

I will send them to you tomorrow morning. We will however request these pictures to be kept confidential. Not the radar is sealed to prevent user to access the inside of the radar.

3. Transmitting frequency

The radar transmits a single specific frequency at nominally 10.510 GHz. This frequency is solely determined by the microwave oscillator. The frequency can be shifted slightly by a mechanical adjustment screw on the microwave oscillator. It is a desire to be able to preset this frequency anywhere within the 10.500 to 10.550 GHz band, which is relative only 0.3%. The purpose of shifting the frequencies for different radars is to avoid potential interference from co-located systems operating simulataneously.

Once the microwave oscillator is installed in the radar, there is no way to change the frequency.

The microwave oscillator is a dielectric resonator type (DRO) which oscillates at the fundamental frequency, this means that spurious frequencies emitted (which are non-existing by the way) have no way to change radically, as could be a potential problem if the frequency was generated by digital means or phase-locked loops etc.

Since all the microwave components are relative broadband compared with the 10.5-10.55 GHz band, the field strength of both the fundamental frequency and the harmonics will not change.

In the test report there are no 10.510 GHz related signals that are real close to any of the limits.

I am very very confident that if the test was conducted by using a 10.500 GHz or 10.550 GHz oscilator, the results would have been exactly the same.

Best regards,

Fredrik Tuxen

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

From: Marianne Bosley [mailto:MBosley@metlabs.com]

Sent: Wednesday, October 20, 2004 22:26

To: Fredrik Tuxen

Subject: RE: 16305 ISG

Importance: High

Hello,

Attached is the sample 15.21 per the FCC Rules. The wording in the manual should be approximately the same. As for #3, please explain below and I will forward.

Regards,

Marianne

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

From: Alvin Ilarina
Sent: Wednesday, October 20, 2004 3:50 PM
To: Marianne Bosley
Cc: 'Chris Harvey'
Subject: RE: 16305 ISG

Marianne,

Please send these questions as a preliminary RT to the customer. We only need affirmation that they will make the changes. Chris is unable to reach his computer for 1 hour. After that he will complete this application.

- 1) There is no 15.21 statement in the manual.
- 2) We need internal photos of the RF modules incorporated into the device.
- 3) Test reports only shows 10.510 GHz tested. However, other documentation implies additional frequencies may be used. Please clarify frequencies used. For sake of speed, the grant can be issued for the 10.510GHz for now.

This is it so far. Chris may or may not have more. Stay tuned.