Tri Luu

From: "Tri Luu" <tri@ultratech-labs.com>
To: "William Graff" <whgraff@americanTCB.com>
Cc: "Victor Kee" <vic@ultratech-labs.com>; "Masaakitakahashi@icomamerica.com Takahashi" <masaakitakahashi@icomamerica.com>
Sent: Friday, October 31, 2003 4:17 PM
Subject: Re: Icom Marine Radio Comments - MORE!

Hi Mr. Graff,

I have tried upload the RF Exposure Info to your web site and I got the reply that as below:

Upload Report
AFJ268500 ATCB000873

The file 1 [RF Expossure Info_IC-M302.PDF] already exist.

Files Uploaded = 0

which means it is there, please check it again.

My answers for the other questions will not be different from what I have already given to you. It will be your decision to accept or refuse my answers/application since I do not agree with your questions at all.

If FCC does not require the statement for compliance with ITU recommendation, we would like not to submit it in order cut down the paperwork.

Tri Luu, P.Eng.

Ultratech Engineering Labs Inc.

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

From: "William Graff" <whgraff@americanTCB.com>
To: "'Tri Luu'" <tri@ultratech-labs.com>
Cc: "'Masaakitakahashi@icomamerica.com Takahashi'"
<masaakitakahashi@icomamerica.com>
Sent: Friday, October 31, 2003 11:40 AM
Subject: RE: Icom Marine Radio Comments - MORE!

Tri,

1.) I just checked - there is no separated RF Exposure information in the RF Exposure exhibit. Perhaps their was a transmission failure?

2.) The idea is to go as close as possible to 1% of the emission bandwidth without going under 1%. For 16K0F3E, 1% of 16,000 = 160Hz. But since 160Hz is not available on a typical spectrum analyzer, the de-facto rule says use 300Hz. Your 1000Hz RBW is too large. When the ITU recommendation [item #3] is received we will have an acceptable standard that describes the DCS modulation, and the tone description portion of this request will become moot.

3.) This is now required per the last FCC/TCB training sessions. It has for years been prudent to supply DSC attestations, even if not required, where appropriate.

4.) Both ANSI C63.4 and CISPR use 120KHz for all radiated emission measurements of Unlicensed and Information Technology equipment. The specification was never designed for Licensed transmitter measurements - and

never for direct feed of a transmitter to a spectrum analyzer. Just look at the differences between the near perfect "Gaussian" IF window of a spectrum analyzer and the "Rectangular" CISPIR IF bandwidth. The differences should be easily apparent, and must always be avoided. This becomes of paramount importance when looking at new technologies such as OFDM and 3G.

5.) How was the effect of impedance mismatch causing incorrect loading of the reference horn accounted for during substitution test? All broadband antennas are never at 50ohm Z across their entire frequency range. Your signal generator may claim the reference antenna is loaded with a specified power, but mismatch will change that considerably. Often the insertion of a simple 3 or 6 dB pad at the antenna connector is good enough. With higher frequencies and longer transmission lines the effect is compounded. My question, very simply, is was SWR taken into consideration to find the "for real" power loaded onto your antenna?

Bill

-----Original Message-----
From: Tri Luu [mailto:tri@ultratech-labs.com]
Sent: Friday, October 31, 2003 2:52 PM
To: William Graff

Cc: Masaakitakahashi@icomamerica.com Takahashi
Subject: Re: Icom Marine Radio Comments - MORE!

Hi Graff,

Please also see this correspondence upload to your web site.

(1) The separate was uploaded to your site at the beginning, where did it go. I will upload it again.
(2) The minimum RBW required is 300 Hz, we test at 1 kHz RBW which is more than the minimum requirement. Why do we have to do it again, I do not understand?. The DSC signal if from EUT's internal source.
(3) We never have the request from FCC Direct, TIMCO or even American TCB for the statement of compliance with ITU recommendation for DSC. But we will request it from ICOM.
(4) We test the conducted and radiated emissions based on FCC requirements with the RBW of 120 KHz more than what required for narrowband signal (30 kHz RBW). Why do we have to do it again. We never have this request from FCC Direct and TIMCO for the past 14 years with our method of measurements, why certainly we have the problem now.
(5) The test procedure for radiated power using substitution method was included in Sec. 8.2.2 of the test report. Dipole antennas are used for frequencies below 1 GHz and horn antenna were used for frequencies above 1 GHz. They are all stated very clearly in Sec. 8.2.2. Please review them again.

Tri Luu

----- Original Message -----
From: "William Graff" <whgraff@americanTCB.com>
To: "'Tri Luu'" <tri@ultratech-labs.com>
Cc: "'Masaakitakahashi@icomamerica.com Takahashi'" <masaakitakahashi@icomamerica.com>
Sent: Friday, October 31, 2003 10:01 AM
Subject: RE: Icom Marine Radio Comments - MORE!

Tri,

Additional documents were uploaded to our site. But no significant changes to the Test Report were attempted.

1.) Please provide MPE estimation as a separate Exhibit, not a part of the Test Report. Please upload this to the RF Exposure exhibit. This is an FCC requirement.

2.) Please provide a better occupied BW plot for G2B emissions. Be sure to observe the requested 300Hz RBW when taking this data. Please describe the tones utilized in J2B signaling.

3.) Please have Applicant (ICOM) provide an attestation to the appropriate ITU recommendations for DSC.

4.) Please provide measurement data for both Radiated and Conducted emissions that DOES NOT use CISPR 120KHz bandwidths. Use the appropriate bandwidths as specified in TIA/EIA 603 for 25KHz equipment.

5.) Please provide addition comments on the radiated Tx spurious using the substitution method. I erroneously identified the horn antenna as used below 1GHz when I should have stated above 1GHz. I apologize for this error. The rest of my comment stands.

6.) Was the permitted channel list and powers specified in Part 80 and the Manual verified? This is an FCC critical requirement.

If you will solve these issues then the Grant will be issued.

Bill

-----Original Message-----
From: Tri Luu [mailto:tri@ultratech-labs.com]
Sent: Friday, October 31, 2003 12:37 PM
To: William Graff
Cc: Masaakitakahashi@icomamerica.com Takahashi
Subject: Re: Icom Marine Radio Comments

Hi Mr. Graff,

The Tuning procedure and test report have already uploaded to TIMCO web site.

Tri Luu

----- Original Message -----
From: "William Graff" <whgraff@americanTCB.com>
To: "'Tri Luu'" <tri@ultratech-labs.com>
Cc: "'Masaakitakahashi@icomamerica.com Takahashi'" <masaakitakahashi@icomamerica.com>

Sent: Friday, October 31, 2003 7:25 AM
Subject: RE: Icom Marine Radio Comments

Tri,

What about tune-up, MPE estimation and requested corrections to the Test Report? These still need to be uploaded to our website. If you sent them to me via email attachment, they are not tracked. They MUST go through the website.

Bill

-----Original Message-----
From: Tri Luu [mailto:tri@ultratech-labs.com]
Sent: Saturday, November 01, 2003 1:20 AM
To: William Graff
Cc: Masaakitakahashi@icomamerica.com Takahashi
Subject: Re: Icom Marine Radio Comments

Hi Graff,

I will upload this email back to the AmericanTCB web site immediately.

Tri Luu

----- Original Message -----
From: "William Graff" <whgraff@americanTCB.com>
To: "'Tri Luu'" <tri@ultratech-labs.com>
Cc: "Masaaki Takahashi" <m-takahashi@icomamerica.com>
Sent: Thursday, October 30, 2003 4:14 PM
Subject: RE: Icom Marine Radio Comments

Dear Mr. Luu,

My apologies for not responding earlier. I took ill with an early cold/flu and was not able to complete my response to you until today.

Please be sure the requested documents are uploaded to the AmericanTCB.com website.

Thanks,

Bill

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
~ William H. Graff, NARTE Certified
~ President and Director of Engineering
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~ AmericanTCB, Inc.
~ 6731 Whittier Ave,
~ McLean, VA 22101
~ mailto:whgraff@americanTCB.com
~ Direct Phone: (480) 317-0683
~ Direct Mobile: (602) 790-6788
~ Corporate Phone: (703) 847-4700
~ Corporate FAX: (703) 847-6888
~
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-----Original Message-----
From: Tri Luu [mailto:tri@ultratech-labs.com]
Sent: Tuesday, October 28, 2003 11:50 AM
To: William Graff
Subject: Re: Icom Marine Radio Comments

Hi Mr. Graff,

Please find our answers below about your comments:

(1) The RF Exposure information is in the User Manual, and it was extracted and sent it to you on a separate file. Please attached. Yesterday I uploaded a revised test report with the revised MPE with 50% duty cycle, please also find it in the attachment.
(2) Both G3E and G2B Emissions were included in the test reports. Can you review them carefully to avoid time for us to answer all of the un-necessary questions.
(3) Thanks for your recommendation but we have never had any problems with FCC, IC and other FCC TCB for our way of doing.
(4) Thanks for your recommendation but we have never had any problems with FCC, IC and other FCC TCB for our way of doing.
(5) The measurements BW indicated in the conducted plots and our test procedures, Exhibit 8.2. Please review carefully to avoid un-necessary questions an answer which could delay the certification process.
(6) There is no way anyone can use 100 KHz RBW to measure the occupied BW. FCC recommendation is minimum 100 Hz RBW for 12.5 kHz Channel Spacing and minimum 300 Hz RBW for 25 KHz Channel Spacing. If we use 100 kHz RBW for measuring occupied bandwidth of a narrowband signal with OBW< 20 KHz, no radio can pass FCC Limits.
(7) Please refer to our test method in Exhibit 8 of the test report
(8) It is not necessary to list all channel frequency in the Users Manual since we know the lowest, highest frequencies of the band and the channel spacing. The channel frequency shall be known. Besides this is only a Technical Acceptance. The Frequency Assignment for regional application will be required Users' License.
(9) We will request for the Tuning Procedures from ICOM and provide it to you later
(10) We employ ANSI C63.4 as test procedure with cable arrangement specified in Figure 9(c)
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Tri Luu, P.Eng.
Ultratech Engineering Labs Inc.

----- Original Message -----
From: "William Graff" <whgraff@americanTCB.com>
To: <tri@ultratech-labs.com>
Sent: Monday, October 27, 2003 4:35 PM
Subject: Icom Marine Radio Comments

> Please see attached comments
>
> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
> ~ William H. Graff, NARTE Certified
> ~ President and Director of Engineering
> ~ AmericanTCB, Inc.
> ~ 6731 Whittier Ave,
> ~ McLean, VA 22101
> ~ mailto:whgraff@americanTCB.com
> ~ Direct Phone: (480) 317-0683
> ~ Direct Mobile: (602) 790-6788
> ~ Corporate Phone: (703) 847-4700
> ~ Corporate FAX: (703) 847-6888
> ~
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