

Jennifer Sanchez

From: Len Knight
Sent: Thursday, December 18, 2008 2:19 PM
To: Jennifer Sanchez
Cc: Len Knight
Subject: RTs for job 81204

Please find the following RTs concerning MET report EMCS81204-FCC247 Final.pdf:

Report:

Page 2 of 68

Table 1 lists 47 CFR Part 15.247:2005 Please ensure that the most current version of 15.247 was used for testing.

Page 14 of 68

Test procedures state that the measurement distance for Radiated Emissions was 10m. Test Results state that the EUT was tested to the Class A limits. Class a limits are published at 10m. Page 15 of 68 lists radiated emissions with a Distance Correction Factor of -10.46. Please explain why there was a Distance Correction Factor applied to these measurements.

Page 21 of 68

Test Procedures mention an out of date ANSI C63.4-1992. Test Procedures also state that a test was performed but Test Results states that the EUT was N/A.

Page 22 of 68

Test Procedures lists the use of a directional coupler. Test setup diagram shows no directional coupler. This is most likely a typo.

Under Test Results, it appears that the Measured 6 dB Bandwidth and the Measured 99% Bandwidth columns are reversed.

Page 26 of 68

Under Test Procedures, it lists the use of a calibrated Power Meter. The plots shown appear to be from a spectrum analyzer. This is most likely a typo.

Page 33 of 68

Under Test Procedures, it lists the formula for EUT Field Strength as having a Distance Correction Factor to 1 meter. The tables listed on Pages 34 through 38 show measurements made at a distance of 3m. Was this distance correction factor applied to the graphs?

Page 40 of 68

At what measuring distance were these measurements made?

Page 42 of 68

Test Procedures lists the use of a directional coupler. Test setup diagram shows no directional coupler. This is most likely a typo.

Page 49-52 of 68

Are these measurements conducted or radiated? If radiated, are they corrected for ACF, distance correlated to 3m, cable loss, and any pre-amp factors? If this is a radiated measurement, why is the measurement units dBuV and not dBuV/m?

Page 53 of 68

Test Procedures lists the use of a directional coupler. Test setup diagram shows no directional coupler. This is most likely a typo.

Page 53 of 68

Under the Test Procedures, the "RBW was set to 3kHz with a VRB at 3*RBW. The spectrum analyzer was set to sweep over a 100 second interval." These procedures are similar to the guidance set forth by the FCC Publication Number 558074 Digital Transmission Systems, measurement and procedures:

Locate and zoom in on emission peak(s) within the passband. Set RBW = 3 kHz, VBW > RBW, sweep= (SPAN/3 kHz) e.g., for a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. The peak level measured must be no greater than + 8 dBm. If external attenuation is used, don't forget to add this value to the reading. Use the following guidelines for modifying the power spectral density measurement procedure when necessary.

After examining the graphs on pages 54-56 of 68, it appears that the sweep time was insufficient for either the guidance of FCC Publication Number 558074 or the test report procedures. Please explain this discrepancy.

Page 59 of 68

Please check the cal date of asset number 1S2198.

Jennifer Sanchez

From: Jennifer Sanchez
Sent: Tuesday, December 23, 2008 9:48 AM
To: Len Knight
Cc: Shawn McMillen; Angela Kekovski; Jenn Warnell; Jennifer Sanchez
Subject: RE: RTs for job 81204
Attachments: EMCS81204-FCC247 Rev 2.pdf

Hi Len,

The report has been revised, please continue your review.

Thanks!
Jennifer

J. Sanchez
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jsanchez@metlabs.com



Certifying the World, One Product at a Time

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Page 14 of 68

Test procedures state that the measurement distance for Radiated Emissions was 10m. Test Results state that the EUT was tested to the Class A limits. Class a limits are published at 10m. Page 15 of 68 lists radiated emissions with a Distance Correction Factor of -10.46. Please explain why there was a Distance Correction Factor applied to these measurements.

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Under Test Results, it appears that the Measured 6 dB Bandwidth and the Measured 99% Bandwidth columns are reversed.

Jennifer Sanchez

From: Len Knight
Sent: Wednesday, December 24, 2008 11:30 AM
To: Jennifer Sanchez
Subject: RE: RTs for job 81204

The following RTs were not addressed with the report revision:

Page 40 of 68

At what measuring distance were these measurements made?

.....Table 19. Radiated Harmonics, Test Results, 30 MHz to 1 GHz – At what measuring distance were these measurements made?

Page 42 of 68

Test Procedures lists the use of a directional coupler. Test setup diagram shows no directional coupler. This is most likely a typo.

.....A directional couple is sill listed in the Test Procedures. The Test Setup diagram shows no directional coupler. Was a directional coupler used for testing? Further, the Test Procedures lists mixers being used to measure from 18 – 40 GHz. Mixers do no appear in the test equipment list nor do plots appear in the test report from 18 GHz to 40 GHz.

Page 49-52 of 68

Are these measurements conducted or radiated? If radiated, are they corrected for ACF, distance correlated to 3m, cable loss, and any pre-amp factors? If this is a radiated measurement, why is the measurement units dBuV and not dBuV/m?

.....Same question. Are these measurements conducted or radiated? If radiated, are they corrected for ACF, distance, correlated to 3m, cable loss, and any pre-amp factors?

Page 53 of 68

Under the Test Procedures, the “RBW was set to 3kHz with a VRB at 3*RBW. The spectrum analyzer was set to sweep over a 100 second interval.” These procedures are similar to the guidance set forth by the FCC Publication Number 558074 Digital Transmission Systems, measurement and procedures:

Locate and zoom in on emission peak(s) within the passband. Set RBW = 3 kHz, VBW > RBW, sweep= (SPAN/3 kHz) e.g., for a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. The peak level measured must be no greater than + 8 dBm. If external attenuation is used, don't forget to add this value to the reading. Use the following guidelines for modifying the power spectral density measurement procedure when necessary.

After examining the graphs on pages 54-56 of 68, it appears that the sweep time was insufficient for either the guidance of FCC Publication Number 558074 or the test report procedures. Please explain this discrepancy.

.....According to FCC Publication Number 558074 Digital Transmission Systems, measurement and procedures:

Section 15.247(d) – Power spectral density (PSD).

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used. Use PSD Option 1 if Power output Option 1 was used. Use PSD Option

2 if power output Option 2 was used.

Since in the report a peak power measurement was made, PSD Option 1 should have been used to conduct the peak power spectral density. According to the Test Procedures listed in the report, PSD Option 2 was used. Please explain why Option 2 was used over option 1 and why these test results are valid.

Jennifer Sanchez

From: Jenn Warnell
Sent: Wednesday, January 07, 2009 10:54 AM
To: Jennifer Sanchez
Subject: RE: RTs for job 81204

Hi Jsan,
I have uploaded the new test report into the job folder (and TCB folders). Please see below for additional responses.

From: Jennifer Sanchez
Sent: Monday, December 29, 2008 1:10 PM
To: Anderson Soungpanya; Shawn McMillen; Jenn Warnell
Cc: Jennifer Sanchez
Subject: FW: RTs for job 81204
Importance: High

Can you please provide a response as soon as possible?

Jennifer

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Certifying the World, One Product at a Time

From: Len Knight
Sent: Wednesday, December 24, 2008 11:30 AM
To: Jennifer Sanchez
Subject: RE: RTs for job 81204

The following RTs were not addressed with the report revision:

Page 40 of 68
At what measuring distance were these measurements made?

.....Table 19. Radiated Harmonics, Test Results, 30 MHz to 1 GHz – At what measuring distance were these measurements made? The distance was measured at 10 m. There is a photograph (Photo 4 on Page 46 of 69 in the Rev. 3 report) that shows this. Page 33 of 69 in the Rev. 3 was updated to reflect an equation for DCF.

Page 42 of 68
Test Procedures lists the use of a directional coupler. Test setup diagram shows no directional coupler. This is most likely a typo.

.....A directional coupler is still listed in the Test Procedures. The Test Setup diagram shows no directional coupler. Was a directional coupler used for testing? Further, the Test Procedures lists mixers being used to measure from 18 – 40 GHz. Mixers do not appear in the test equipment list nor do plots appear in the test report from 18 GHz to 40 GHz. This has been corrected to remove the Directional coupler.

Page 49-52 of 68

Are these measurements conducted or radiated? If radiated, are they corrected for ACF, distance correlated to 3m, cable loss, and any pre-amp factors? If this is a radiated measurement, why is the measurement units dBuV and not dBuV/m?

.....Same question. Are these measurements conducted or radiated? If radiated, are they corrected for ACF, distance, correlated to 3m, cable loss, and any pre-amp factors? This has been corrected. The plots were moved to the correct test section.

Page 53 of 68

Under the Test Procedures, the “RBW was set to 3kHz with a VRB at 3*RBW. The spectrum analyzer was set to sweep over a 100 second interval.” These procedures are similar to the guidance set forth by the FCC Publication Number 558074 Digital Transmission Systems, measurement and procedures:

Locate and zoom in on emission peak(s) within the passband. Set RBW = 3 kHz, VBW > RBW, sweep= (SPAN/3 kHz) e.g., for a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. The peak level measured must be no greater than + 8 dBm. If external attenuation is used, don't forget to add this value to the reading. Use the following guidelines for modifying the power spectral density measurement procedure when necessary.

After examining the graphs on pages 54-56 of 68, it appears that the sweep time was insufficient for either the guidance of FCC Publication Number 558074 or the test report procedures. Please explain this discrepancy.

.....According to FCC Publication Number 558074 Digital Transmission Systems, measurement and procedures:

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The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used. Use PSD Option 1 if Power output Option 1 was used. Use PSD Option 2 if power output Option 2 was used.

Since in the report a peak power measurement was made, PSD Option 1 should have been used to conduct the peak power spectral density. According to the Test Procedures listed in the report, PSD Option 2 was used. Please explain why Option 2 was used over option 1 and why these test results are valid.

From Test Engineer:

Response: This is incorrect. The evaluation was done according to PSD Option 2. The Output Power test was done similar to Power Option 1, Method 3, except that a peak detector was used instead of a sample detector. A Peak Detector would over-estimate the output power than what would be determined by a sample detector; therefore, its power setting would satisfy the output power requirement. Furthermore, the minimum margin between the PSD and the test limit is 11 dBm.

Also, the power spectral density is acquired using trace power averaging with a peak detector, which would acquire the peak value in a similar manner to increasing the sweep time. Therefore, the test method used complies with the requirements of this FCC publication

Jennifer Sanchez

From: Jenn Warnell
Sent: Friday, January 16, 2009 9:06 AM
To: Len Knight
Cc: Jenn Warnell; Jennifer Sanchez
Subject: RE: Technical Review Request: 81204 Motorola - IC CB

Hi Len,

The updated Report (Rev. 4) is in the job folder. Please continue with your review.

Thanks,
Jenn

From: Len Knight
Sent: Tuesday, January 13, 2009 2:58 PM
To: Jennifer Sanchez
Cc: Shawn McMillen; Angela Kekovski; Jenn Warnell
Subject: RE: Technical Review Request: 81204 Motorola - IC CB

In accordance with RSS-Gen Issue 2, June 2007, Section 6. Receiver Spurious Emission Standard Receiver Spurious Emissions shall comply with the limits of Table 1, Spurious Emissions Limits for Receivers.

The peak spurious receiver emission is not listed in EMCS81204-FCC247 Rev 3.pdf

Please list the peak spurious receiver emission.

Hello Len,

Please accomplish the technical review for this IC application with the following information:
L:\METrak_Job_Folders\2008\M\Motorola, Inc - MOT10\81204\TCB\Customer Info\IC CB

Please keep in mind the application should be reviewed within 24 - 48 hours. Let me know if I should provide you anything else, or if there may be any delays you may foresee in reviewing.

Thank you!

J. Sanchez
TCB Administrator
MET Laboratories, Santa Clara CA
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408-829-1603 Cell
jsanchez@metlabs.com

Jennifer Sanchez

From: Dusmantha Tennakoon
Sent: Monday, January 19, 2009 6:35 AM
To: Jennifer Sanchez; Jenn Warnell
Subject: RE: Member Review Request: 81204 Motorola - FCC/IC TCB

I see two concerns:

1. The user's manual states that a 12 V regulated power supply shall be used for the product. However, no CEV was tested using such a power supply. There is no indication in the user's manual that the device is POE. If the POE is supplied through a brick that plugs into the wall then CEV is also required.
2. Please check the RF evaluation on the IC Appendix document. It does not appear to be correct.

Best Regards,

Dusmantha

From: Jennifer Sanchez
Sent: Friday, January 16, 2009 2:32 PM
To: Dusmantha Tennakoon
Cc: Shawn McMillen; Angela Kekovski; Jenn Warnell; Jennifer Sanchez
Subject: Member Review Request: 81204 Motorola - FCC/IC TCB
Importance: High

Hello Dusmantha,

Please review this project for FCC & IC TCB certification approval.

K:\METrak_Job_Folders\2008\M\Motorola, Inc - MOT10\81204\TCB\Certification Review

All relevant and required documentation is viewable within the project folder:

K:\METrak_Job_Folders\2008\M\Motorola, Inc - MOT10\81204\TCB\Customer Info\FCC TCB

K:\METrak_Job_Folders\2008\M\Motorola, Inc - MOT10\81204\TCB\Customer Info\IC CB

Please find attached the draft CB grant for your review and approval.

Admin check sheet: [81204 Motorola - Admin Checksheet.doc](#)

Technical Review: Len Knight

Quality Review: Tim Rasinski

Thank you!

J. Sanchez

TCB Administrator

MET Laboratories, Santa Clara CA

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jsanchez@metlabs.com

Jennifer Sanchez

From: Jennifer Sanchez
Sent: Tuesday, January 20, 2009 3:50 PM
To: Dusmantha Tennakoon
Cc: Shawn McMillen; Angela Kekovski; Jenn Warnell; Jennifer Sanchez
Subject: FW: 81204 Motorola - 4th TCB Request for Additional information
Importance: High
Attachments: MC-802 User Guide draft 08-27-08.pdf; 81204 Motorola - IC Appendix_Rev1.doc

Hi Dusmantha,
Please see response below and attached revised IC Package.

Thanks!

J. Sanchez
TCB Administrator
MET Laboratories, Santa Clara CA
408-207-4785 Office
408-829-1603 Cell
jsanchez@metlabs.com



From: Marum John-MQJ637 [mailto:jmarum@motorola.com]
Sent: Tuesday, January 20, 2009 2:48 PM
To: Jennifer Sanchez; Welty Michael-MGI1048
Cc: Jenn Warnell; Hermans Daran-MQFW38
Subject: RE: 81204 Motorola - 4th TCB Request for Additional information

Hi Jennifer,

I have attached the latest copy of the MC-802 User Guild that I have for your reference. (If your copy is newer please let me know.)

The 12V regulated power supply is not used during operation. It is only used as an optional test tool during installation and is not shipped with the product. I searched for all references to "12V" in the manual and the manual states that the supply is not used during operation.

On page 10 the manual states that the 12V supply is for use during installation:

Components required to purchase:

Regulated 12V power supply. Use of the wrong power supply could result in damage to your WallPlate unit. Please order a small quantity of regulated 12V power supplies from Motorola PBN to use during installation.

If you do not have the correct regulated 12V power supply – **STOP**. Order a regulated 12V power supply from your Motorola PBN sales representative.

On page 12 the manual has the installer remove the 12V supply as the last step of the installation:

Finish the installation

Remove the 12V regulated power supply. If the correct port is enabled for line power, the WallPlate will reset and operate from in-line power.

On page 8 the manual does mention that the wallplate is line powered by the 45125 mT2a switch, which provides it with "Adaptive Line Power".

Model Number	Description
45125	25 port mT2a Ethernet ^{XD} Switch. 2 x GigE uplink Ethernet ports and 25 x high speed DSL ports for connection to UTP wiring. Provides broadband data and Adaptive Line Power for remote WallPlate. RoHS compliant.

Since the main selling point of the wallplate is line power, all of the customers know that is how the product is used so the manual does not emphasize this feature.

Regards,

John

From: Jennifer Sanchez [mailto:jsanchez@metlabs.com]
Sent: Tuesday, January 20, 2009 1:35 PM
To: Welty Michael-MG11048; Marum John-MQJ637
Cc: Jennifer Sanchez; Jenn Warnell
Subject: 81204 Motorola - 4th TCB Request for Additional information
Importance: High

Hi Michael & John,

The following issue was found during the final review for the FCC/IC application, please see below:

- The user's manual states that a 12 V regulated power supply shall be used for the product. However, no CEV was tested using such a power supply. There is no indication in the user's manual that the device is POE. If the POE is supplied through a brick that plugs into the wall then CEV is also required.

Please provide clarification.

Thanks!

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