

Questions:

Dear Mr. Patterson,

Thank you for your business. I have the following issues to resolve in order to issue your grant.

1. On the radiated emissions table for harmonics 1 and 2, the meter reading column is not filled in. Why? Why do you think the limit for harmonic 2 is 46dB QP?
2. I need a discussion of how the unit's on-time varies to both justify the averaging factor you have claimed and to show compliance with 15.231(e) last paragraph. Please submit time based plots of the worst case on-time cycles from a suitable instrument such as an oscilloscope.
3. Please confirm that the label is affixed via permanent adhesive and made of such a material which is likely to last the life of the product. Please identify the material of the label.
4. Please submit a plot or photograph showing the unit's bandwidth for compliance with 15.231 (c).
5. Confirm that a new battery was used during testing.
6. Confirm that the antenna is soldered to the base board and that there is not a connector that allows the antenna to be removed.
7. For your information the average limit for your harmonics is 52.3 dBuV/m as the table in 15.231(e) is based solely on the fundamental frequency. No emissions fail and no further response on this item is needed.
8. For your information, frequency stability data with respect to temperature is not required of this device as it is not a 40.66-40.7Mhz device.
9. I need a little more on the relationship between dBi and Lexmark. Please have dBi send me a letter or email stating that Lexmark is acting as a subcontractor for them within the meaning of ISO Guide 25 and that dBi takes responsibility for the test data contained in the application.

Please contact me if you have any questions concerning the issues raised in this email.

Sincerely,

--

Jon D. Curtis
Certification Manager

Response

Dear Mr. Curtis:

Thank you very much for your rapid response on the Certification request for the subject item.

I am either responding to or noting who will respond to each question that you posed in your email of 7/25.

1. The data were taken at two different times. The data below 1GHz was taken with one antenna and receiver, and the data above 1 GHz was taken with another. The raw data is available, and the information will be included on the results page and it will be sent to you. Since 836 MHz is the second harmonic of 418, it appears that the limit could be 54 dB (500 uV) if measured both peak and Av. Could not it be 46 dB if measured QP according to 15.209? In any case, the second harmonic complies.
2. John Compton of Point Six Inc. will perform these measurements and supply them to you.
3. David Patterson of TWI will supply the label information.
- 4 I will perform these measurements on Wednesday and will email you the spectrum analyzer photos and information.
5. A new battery was indeed used, and John Compton will verify this.
6. The antenna is permanently attached to the coaxial cable and the cable is soldered to the transmitter board. John Compton will verify this with photographs.
7. From 15.231(e) it appears to me that the average limit above 470 MHz is 500 uV/m, which I believe is 54 dB re 1 uV/m. I have always assumed that "spurious emissions" included harmonics, but 15.3 does not include a definition. If I'm in error, please explain this to me.
8. Thanks for catching this. We will have more products that operate

above 400 MHz, and it's good to know that we don't have to do the temperature stability measurements. However, the product must be reasonably stable, or it would drift out of range with the receiver.

9. I will fax you a copy of the facility usage agreement that has been initiated between Lexmark and dBi. Please note that A2LA is satisfied with the conditions of this agreement.

Thank you again for your prompt response, and I will send you the information mentioned in items 1, 4, and 9.

John Compton will send the information in items 2, 5, and 6.

David Patterson will send the information in item 3.

Response 2:

Dear Mr. Curtis,

Included here as an attached file is the updated radiated emissions table. Please let me know if you need a hard copy.

Regards,

Don

Donald R. Bush

Response 3:

Dear Mr. Curtis:

I am the electrical engineer at Point Six, Inc. that designed the Texas weather Instruments wireless weather station. I have made an attempt to answer your questions in the attached Word document. Please let me know if you need anything more.

Thanks

John I. Compton

Response 4:

Item 3. Yes, the label is made of a permanent material. The label is a Flexcon 2 mil PM200S mylar with a Flexcon 1 mil PM100C Polyester laminate.

David Patterson

Response 5:

Attached here are two jpeg photos of an H-P 8568 Spectrum analyzer trace of the transmission from a Wireless Weather Station. They are stored as a Word Document. A short piece of wire was connected to the input of the spectrum analyzer and max-hold was enabled for twenty transmissions. I set the marker to show the 20 dB down points on each side of the center frequency, and the 20 dB bandwidth was measured to be 44 kHz. This is well within the limit of .25% of 418 MHz as listed in 15.231(c).

Please let me know if you need further information.

Regards,

Don

Donald R. Bush