

REGULATORY COMPLIANCE REPORT

TITLE: FCC, CCU100A/B and RPT100A/B, Long Message FCC Test Report for FHSS

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REV	CCO	DESCRIPTION OF CHANGE	DATE	APPROVALS	
001	SP010217	INITIAL RELEASE	12/5/12	Engineering	J. Delamater
			12/05/12	Regulatory	J Anselmo

REVISION HISTORY

002		Added FCC ID: EO9CCU100B and IC 864A-CCU100A, 864A-CCU100B	06may13		

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Test Data Summary

FCC 15.247
 Frequency Hopping Transmitter, 903-926.8*MHz
FCC ID: EO9CCU100A, EO9CCU100B
IC:864A-CCU100A, 864A-CCU100B

Serial Numbers: 74045261

Updated measurements:

Rule	Description	Previous reading	updated reading	Pass/Fail
Part 15.247(a)(1)(i)	Time of Occupancy	16.23 mS	23.78 mS	Pass

Validation measurements:

Rule	Description	Previous reading	Validation/updated reading	Max Variance
Part 15.247(b) (2)	Power Output – Conducted	25.9 dBm	21.56 dBm	-4.34 dBm (note 1)

* see supporting exhibits in this filing for compliance to 926.9MHz.

Rule versions: FCC Part 1 (01-2006), FCC Part 2 (01-2006), FCC Part 15 (02-01-2006), RSS-102 Issue 2 (11-2005), RSS-210 Issue 7 (June 2007), RSS-Gen Issue 2 (06-2007).

Reference docs: ANSI C63.4-2003, DA 00-705 (03-30-2000), OET65 (08-1997), OET65C (06-2001), IEEE C95.3-2002.

Cognizant Personnel	
<u>Name</u> Jon Smitham	<u>Title</u> R&D Manager
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CONDITIONS DURING TESTING

No Modifications to the EUT were necessary during the testing.

EUT Operating Frequency

The EUT was operating at 903 MHz – 926.8 MHz

Temperature and Humidity During Testing

The temperature during testing was within +15° C and +35° C.

The Relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

Itron declares that the EUT tested was representative of a production unit.

EQUIPMENT UNDER TEST

Transmitter Module

Manuf:	Itron, Inc.
Model:	CCU100, AC, Remote,
Serial:	74045261

Note: The 'A' and 'B' models have the same identical ISM 902-928MHz radio, RF circuitry and operation. They differ with the WiFi module used. See other exhibits in his filing.

15.247(a) (1) (i)

Time of Occupancy

Verify that the transmitted signal does not occupy a single frequency for more than 400 mS in a 20 second period.

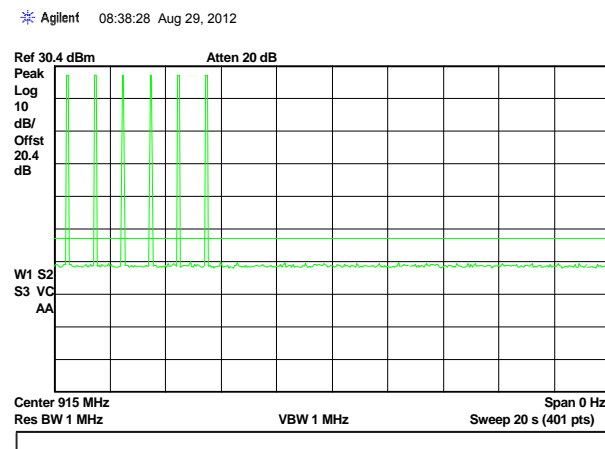
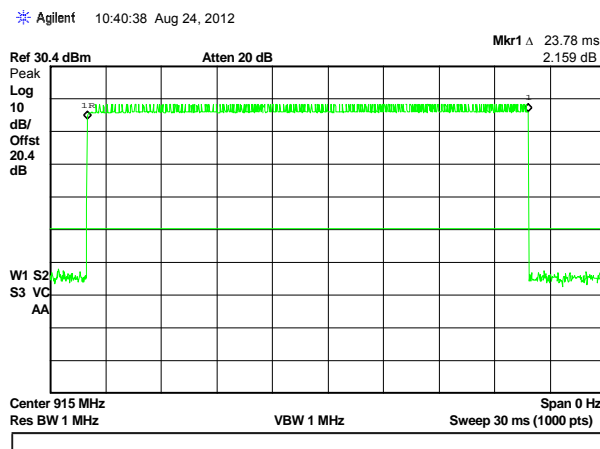
The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = zero span, centered on a hopping channel
- RBW = 1 MHz
- VBW \geq RBW
- Sweep = as necessary to capture the entire dwell time per hopping channel
- Detector function = peak
- Trace = max hold

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. Submit this plot(s).

Each transmission is now a maximum of 23.8 ms long (as opposed to the 16.23 ms from the original filing). Each transmission takes place on one of 120 different channels in a pseudo-random sequence. All 120 channels are used equally on the average. The algorithm that determines the pseudo-random hop sequence does not allow the device to transmit on the same channel more than 6 times in a 20 second period. The maximum possible occupancy time on any one frequency is now 142.8 mS or 6 times within a 20 second period.

Equipment Used	Serial Number	Cal Date	Due
HP4407B	MY45107856	3/11	3/13
Date	Tested by		
8/24/2012	Jeff Delamater		



15.247(b) (2)**Power Output**

The maximum peak conducted output power of the intentional radiator shall not exceed the following: For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels.

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.

RBW > the 20 dB bandwidth of the emission being measured.

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

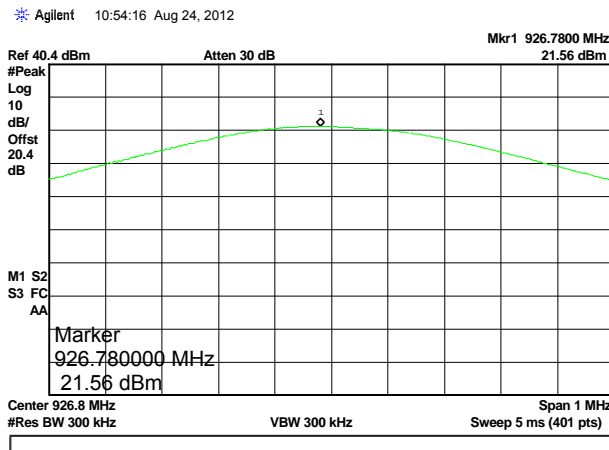
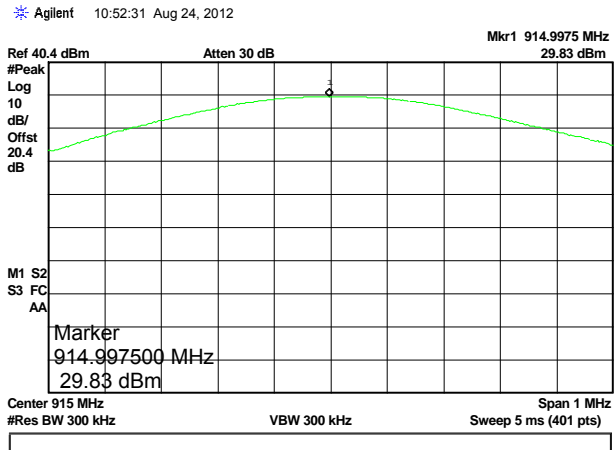
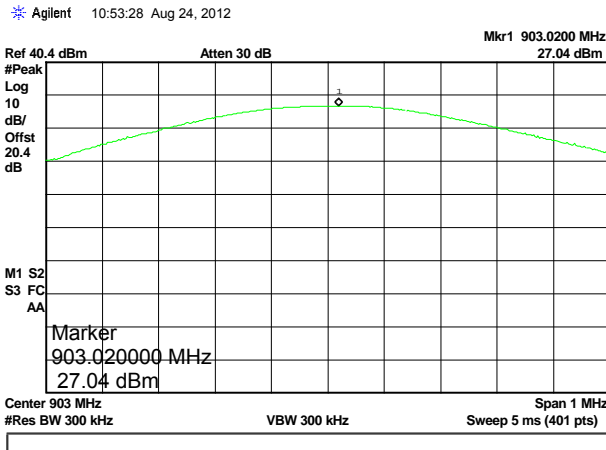
Set RF level offset=cable loss

Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power. The limit is specified in one of the subparagraphs of this Section. Submit this plot. A peak responding power meter may be used instead of a spectrum analyzer.

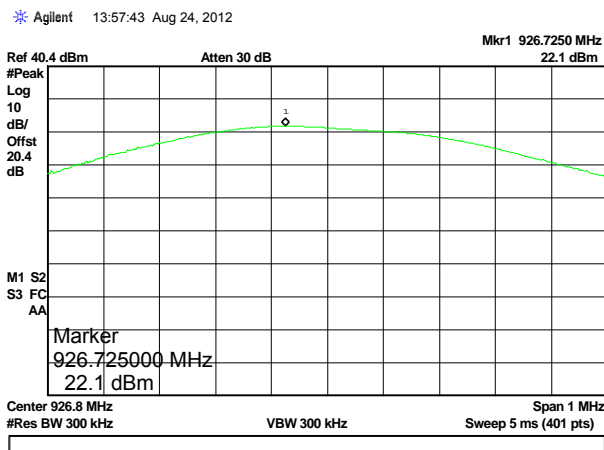
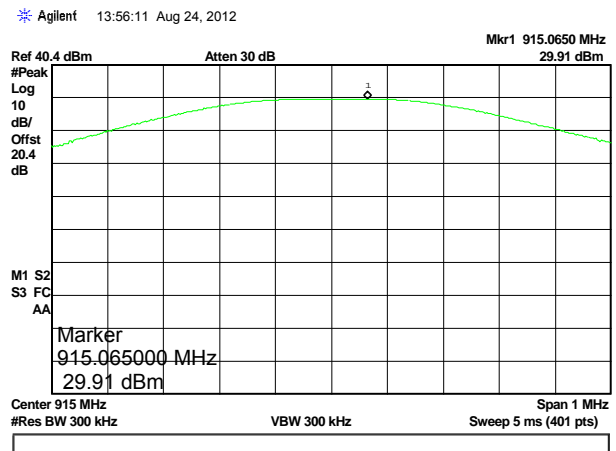
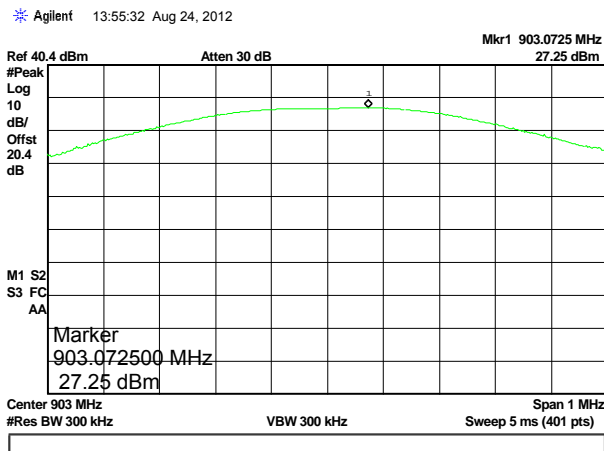
Note: The purpose of this test is to validate the report from 2011, since over a year has passed. No changes are being made to this product except for the new maximum message length.

Equipment Used	Serial Number	Cal Date	Due
HP4407B	MY45107856	3/11	3/13
Date	Tested by		
8/24/2012	Jeff Delamater		

Modulation: 37.5K baud FM			
Frequency (MHz)	Power out (dB)		Variance dB
	taken 4/26/2011	taken 8/24/2012	
903	28.1	27.04	-1.06
915	29.4	29.83	0.43
926.8	25.9	21.56	-4.34 (Note 1)

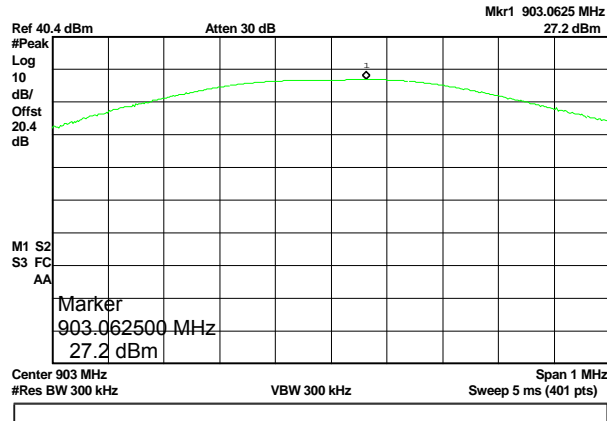


Modulation: 12.5K baud FM			
Frequency (MHz)	Power out (dB)		Variance dB
	taken 4/26/2011	taken 8/24/2012	
903	28.3	27.25	-1.05
915	29.5	29.91	0.41
926.8	26.0	22.10	-3.90 (Note 1)

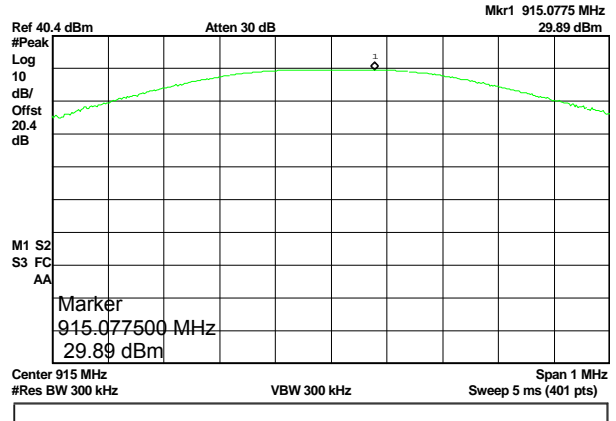


Modulation: 16K baud AM			
Frequency (MHz)	Power out (dB)		Variance dB
	taken 4/26/2011	taken 8/24/2012	
903	28.5	27.20	-1.30
915	29.7	29.89	0.19
926.8	26.0	22.10	-3.90 (Note 1)

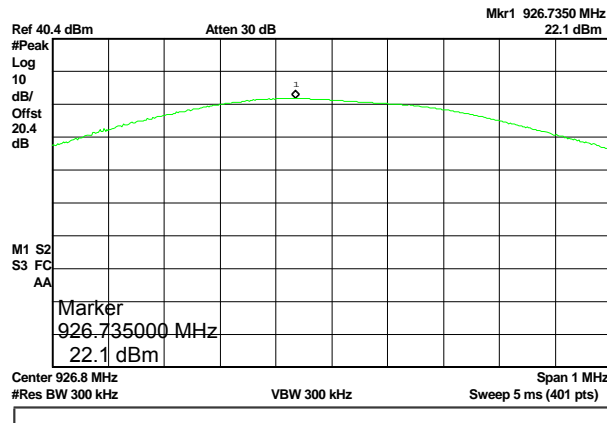
Agilent 14:00:01 Aug 24, 2012



Agilent 14:00:30 Aug 24, 2012



Agilent 14:01:43 Aug 24, 2012



Note 1: The path loss for the cavity filter used in the transmitter path is specified at 5.0 dB max (924MHz - 926MHz) and 12dB min at 928 MHz. Therefore, at 926.8 MHz the output power could be 10dB lower than mid band power at 915 MHz.