



166 South Carter, Genoa City, WI 53128

Manufacturer: Rehabilitation Institute of Chicago  
Product: Complete Controller  
Report Number: 19867  
Project Number: 6104

**Code of Federal Regulations 47**  
**Part 2 –Subpart J – Section 2.1093**  
**Radiofrequency radiation exposure evaluation: portable devices**

**Company:** Rehabilitation Institute of Chicago  
**Model:** CCDB110  
**Formal Name:** Complete Controller

**Rule Part:** CFR 47 Part 1.1307(b)  
CFR 47 Part 2.1093

**Test Procedure:** FCC 447498 10 D01 General RF Exposure Guidance v05  
4.3. General SAR test reduction and exclusion guidance  
4.3.1. Standalone SAR test exclusion considerations

**Limits:** The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at  
*test separation distances*  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where:

$f(\text{GHz})$  is the RF channel transmit frequency in GHz.

Power and distance are rounded to the nearest mW and mm before calculation.

The result is rounded to one decimal place for comparison.

When the minimum *test separation distance* is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

**Output Power:** The maximum output power as listed on the FCC Grant of Equipment Authorization for this device in 802.11g (2.4 GHz) mode is 113.5 mW.

Test exclusion conditions are based on source-based time-averaged maximum output power. Total ON time = 7.816 ms during 100 ms. Duty cycle (x) =  $7.816 / 100 = 0.07816$

Source-based time-averaged maximum power =  $113.5 \text{ mW} \times 0.07816 = 8.871 \text{ mW}$ .

8.871 mW rounded to the nearest mW = 9 mW.

**Exclusion threshold:**  $[9 \text{ mW} / 5 \text{ mm}] \times [\sqrt{2.462 \text{ GHz}}] = 2.82$

**Results:** 2.82 is  $\leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR.

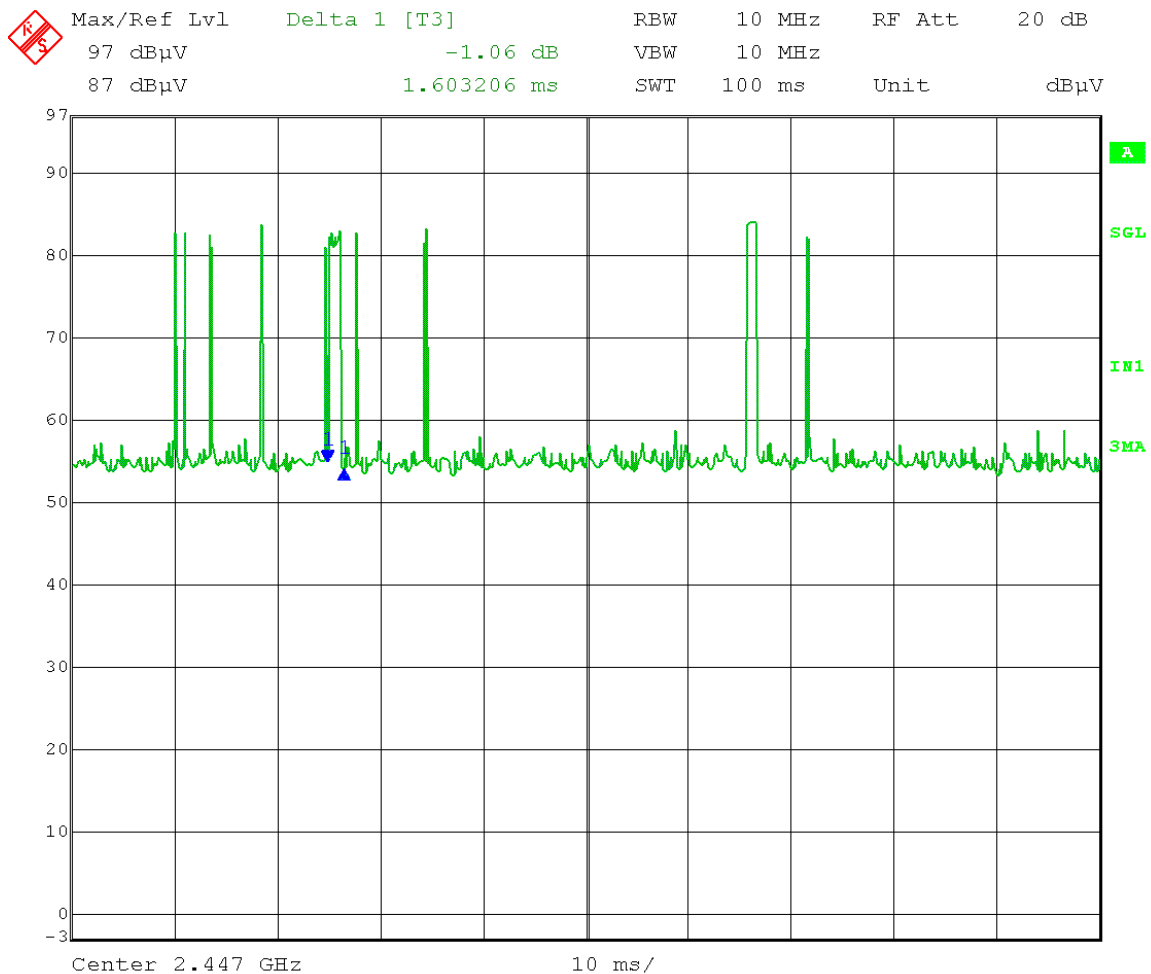
**SAR measurement is not necessary.**

## Duty Cycle Measurements

Test Date: 02-24-2014  
Company: Rehabilitation Institute of Chicago  
EUT: CCDB110 Wireless Module  
Test: Duty Cycle  
Operator: Craig B

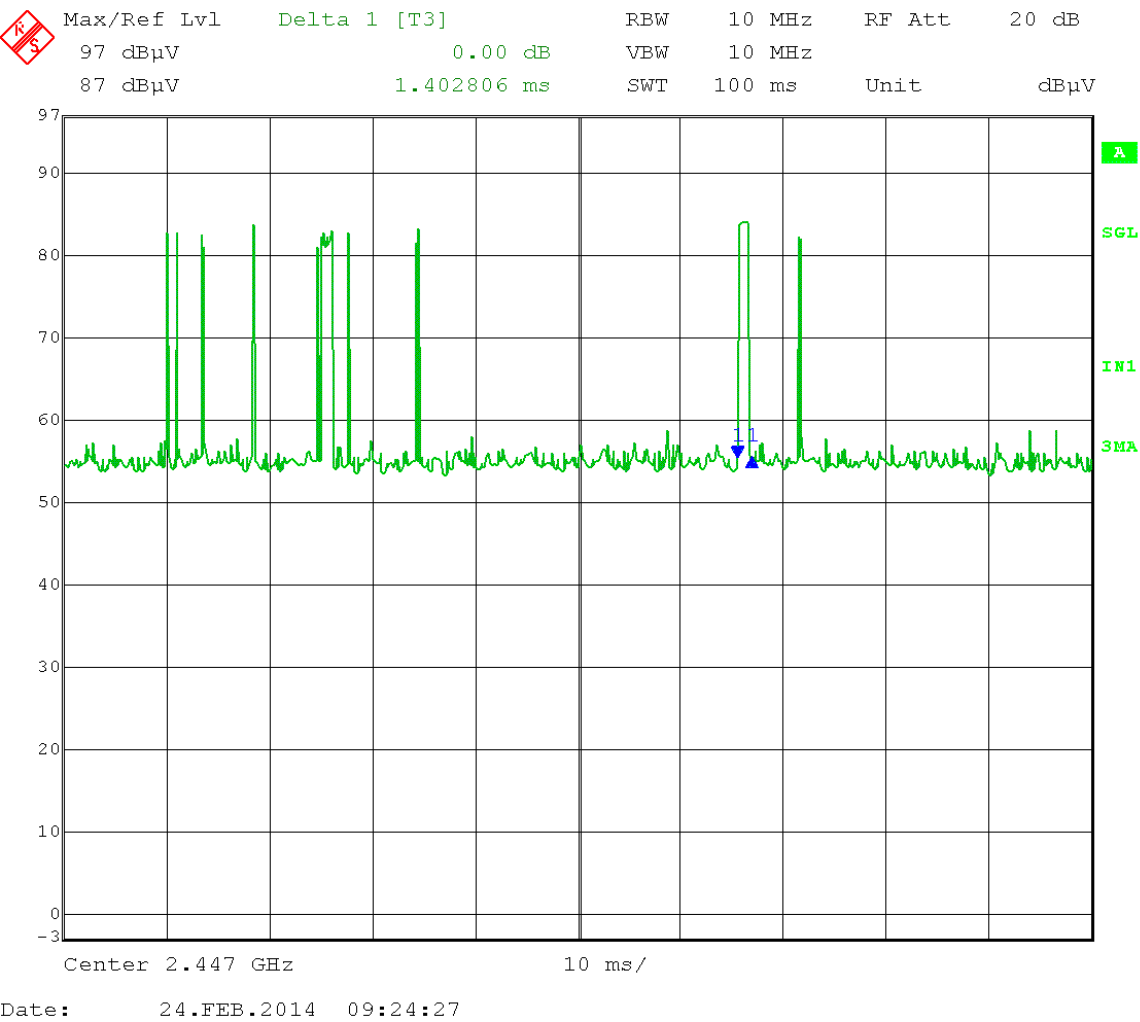
Comment: Total ON time = 7.816 ms during 100 ms  
Duty cycle (x) =  $7.816 / 100 = 0.07816$

1 pulse at 1.603206 ms  
1 pulse at 1.402806  
8 pulses at 0.601202405 ms each

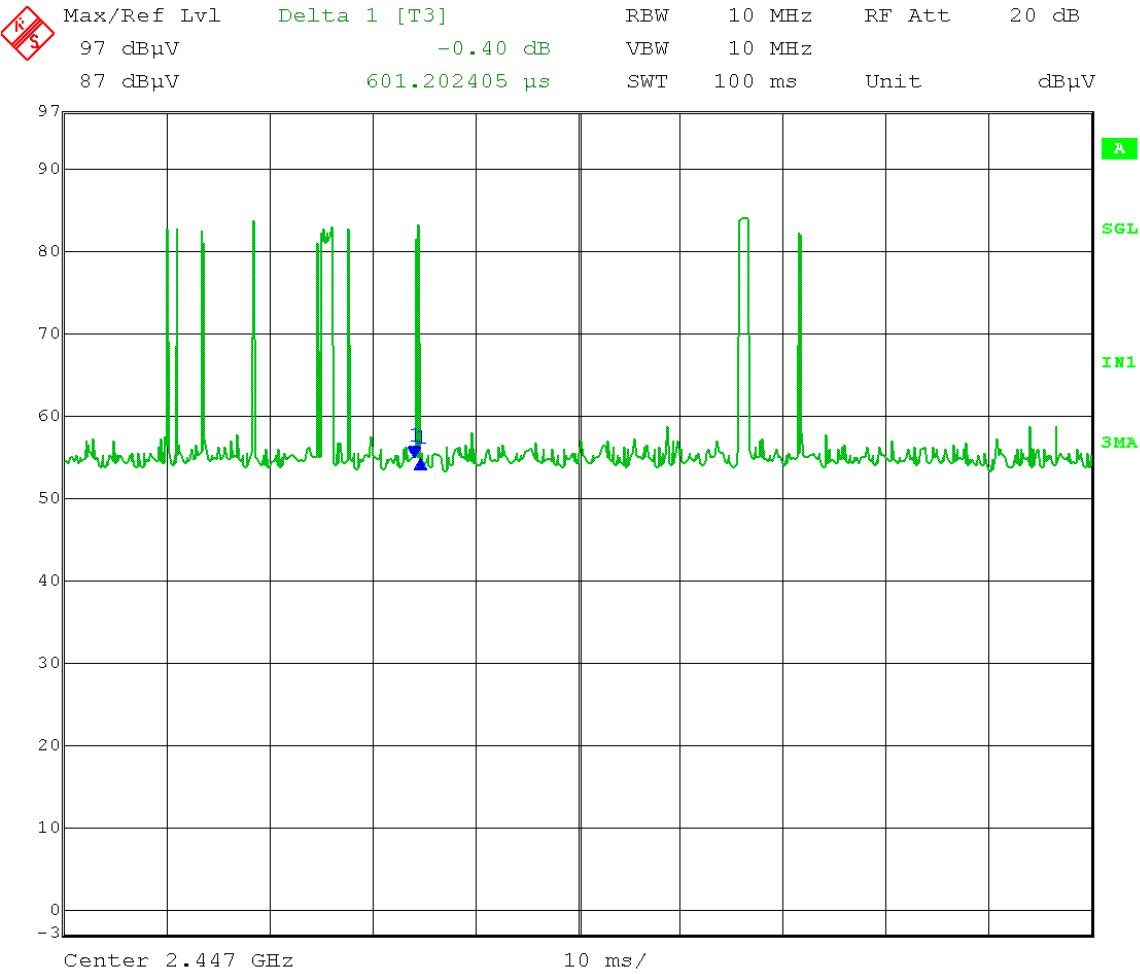


Date: 24.FEB.2014 09:23:26

# Duty Cycle Measurements

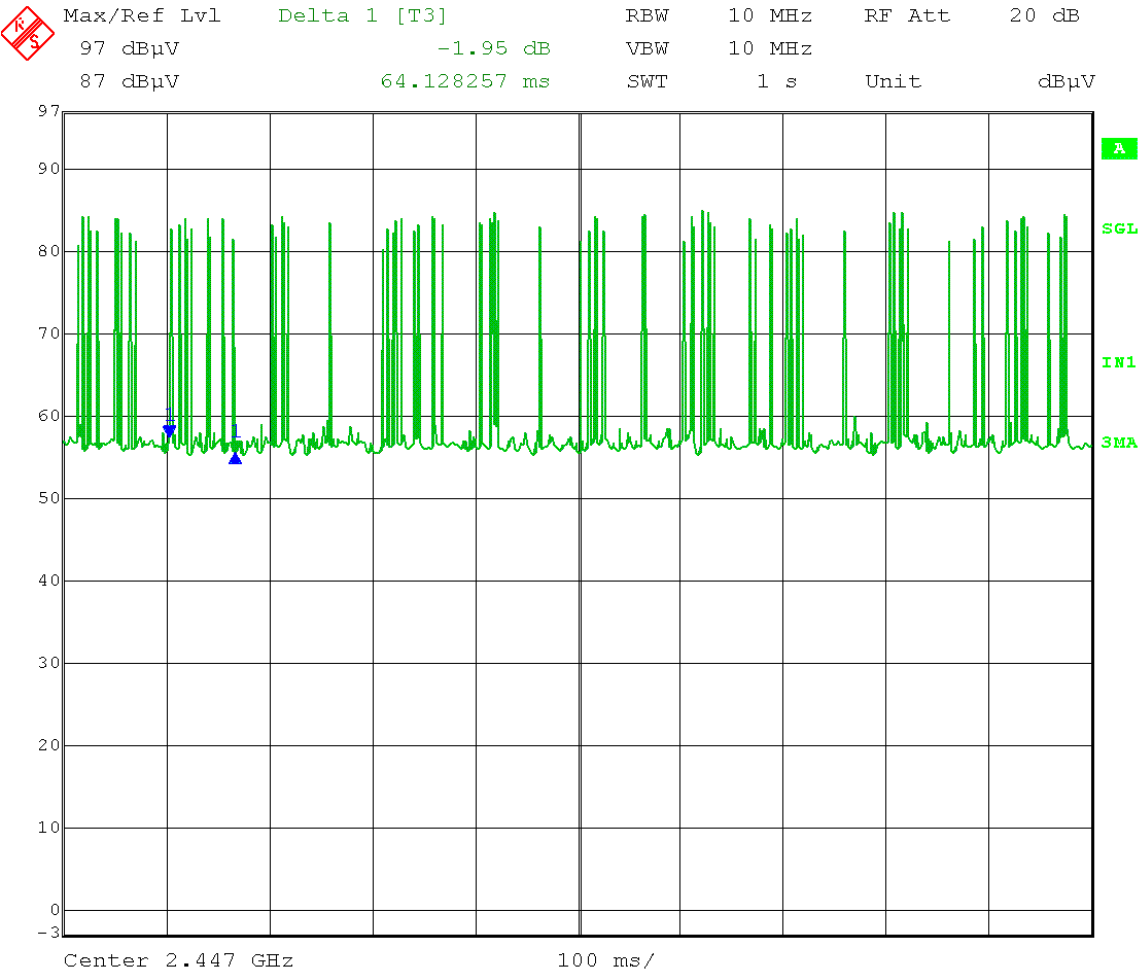


# Duty Cycle Measurements



Date: 24.FEB.2014 09:25:12

# Duty Cycle Measurements



Date: 24.FEB.2014 09:17:47

### (SITE 3) EMISSIONS TEST EQUIPMENT LIST

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	7-23-13	7-23-14
Horn Antenna	EMCO	3115	9903-5731	1-18GHz	7-11-13	7-11-15

## END OF REPORT

Revision #	Date	Comments	By
1.0	3-25-14	Preliminary Release (revised format)	CB/JS
2	8-08-14	Model Number Corrected	JS