LONG RANGE SYSTEMS, LLC

4550 Excel Parkway, Suite 200

Addison, TX 75001

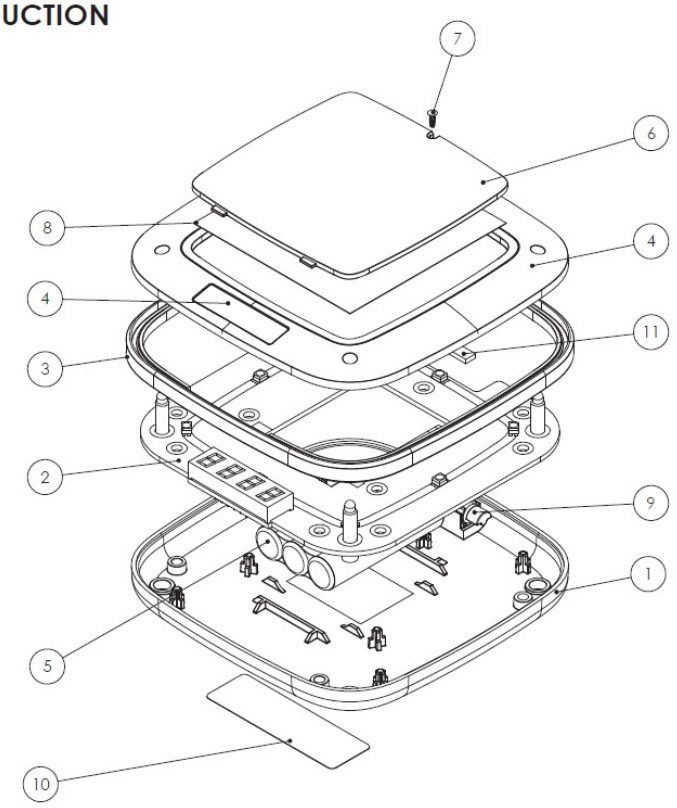
Greetings,

The RX-AT9, RX-CS7 and RX-CS6 are based on a common electrical and mechanical design platform.

The AT-9 and CS-7 possess the superset of features with only a minor variation in top cover design that sets them apart. They are electrically identical at the PCBA level. This full-featured PCBA was used for all regulatory testing and for business reasons, the RX-CS7 plastic housing (top cover) was made available before the RX-AT9. To illustrate the difference in the top covers, three exploded assembly views are presented below. The RX-CS7 top cover (item 6 in its drawing) is mechanically identical to the RX-AT9 top cover (item 4 in its drawing) except for the RX-AT9 addition of a Clear Cover (item6) that is used to secure a paper advertising label (item 8). This is the *only* difference between the RX-CS7 and the RX-AT9.

LRS
Long Range Systems

PRODUCTION



ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.
1	K5-0014	D	LRS CS7/AT9 BOTTOM COVER - ULTRASONIC WELDING	1
2	G1-0179	B	LRS AT9 PCB ASSEMBLY	1
3	K1-0191	A	LRS PAGER BUMPER	1
4	K5-0013	D	LRS AT9 TOP - ULTRASONIC WELDING	1
5			BATTERY PACK	1
6	K1-0194	A	LRS AT9 CLEAR COVER	1
7	F1-0240		FLAT HEAD THREAD FORMING SCREW 0-42X0.188	1
8	M2-0133	A	AT9 TOP LABEL	1
9			KOTL VIBE MOTOR	1
10	M1-0093	A	LRS BOTTOM LABEL	1
11	P1-0077	B	MOTOR FOAM TAPE	1

IN2 INNOVATION

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MM[INCH]
TOLERANCES:
0 = ± 1.00
0.0 = ± 0.30
0.00 = ± 0.25
0.000 = ± 0.125
ANGULAR = ± 1°
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

TITLE: LRS AT9 ASSEMBLY

DRAWN BY: JP 05/01/14
DWG. NO. 99-0274
REV D
JAG
SCALE: 1:1
SHEET 2 OF 2

FILENAME: LRS_AT9_ASSY

LRS
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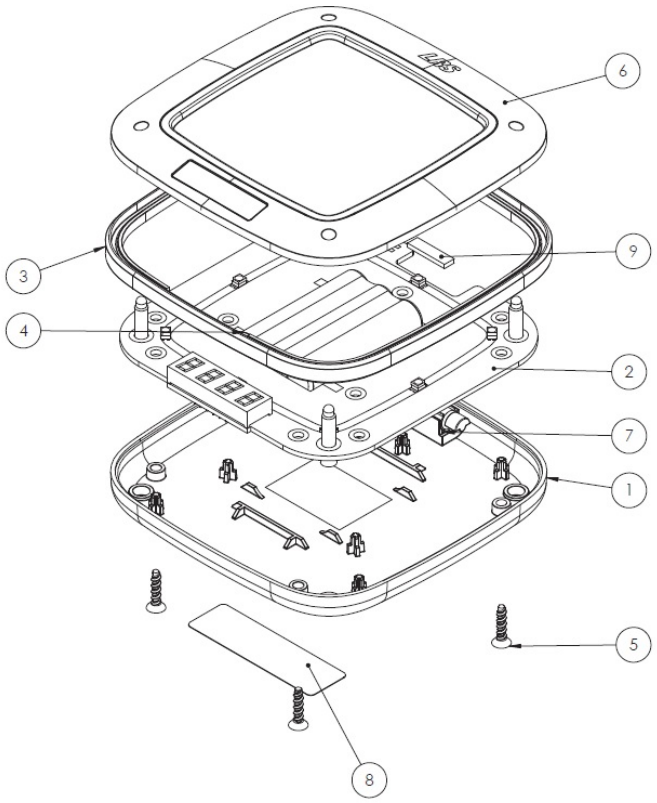
PRODUCTION

ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.
1	K5-0014	D	LRS CS7/AT9 BOTTOM COVER - ULTRASONIC WELDING	1
2	G1-0181	A	LRS CS7 PAGER PCB ASSEMBLY	1
3	K1-0191	B	LRS PAGER BUMPER	1
4			BATTERY PACK	1
5	F1-0239	B	FHTF5 M2.5 X 12.7 LRS PAGER SCREW	4
6	K5-0015	D	LRS CS7 TOP - ULTRASONIC WELDING	1
7			KOTL VIBE MOTOR	1
8	M1-0093	B	LRS BOTTOM LABEL	1
9	P1-0077	B	MOTOR FOAM TAPE	1



IN2 INNOVATION

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MM[INCH]
TOLERANCES:
0.x ± 1.00
0.0 ± 0.30
0.00 ± 0.25
0.000 ± 0.125
ANGULAR ± 1°
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

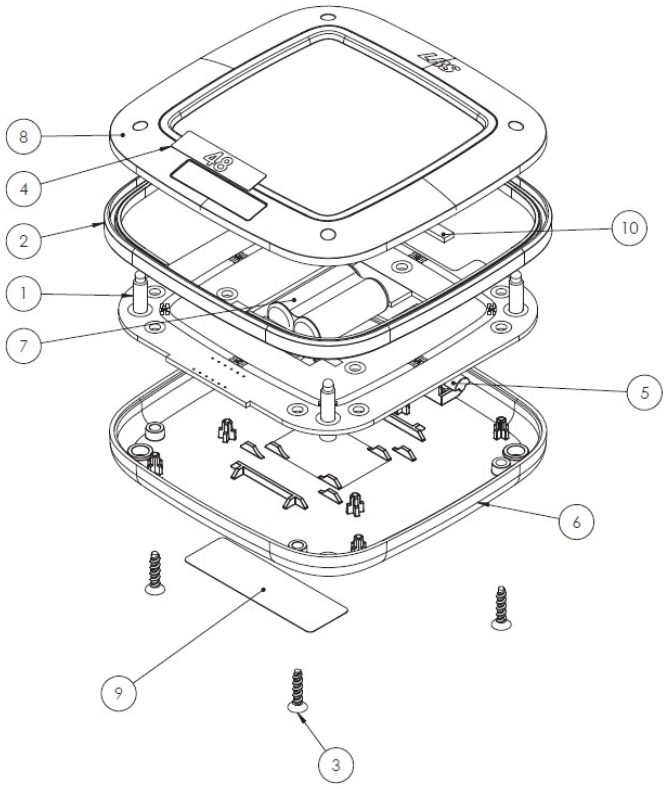
TITLE: LRS CS7 ASSEMBLY

DRAWN BY	DWG. NO.	REV
JP 5/1/14	99-0273	D
JAG	SCALE: 1:1	SHEET 2 OF 2

FILENAME: LRS_CS7_ASSY

LRS
Long Range Systems

PRODUCTION



ITEM NO.	PART NUMBER	REV	DESCRIPTION	QTY.
1	G1-0180	A	LRS CS6 PCB ASSEMBLY	1
2	K1-0191	A	LRS PAGER BUMPER	1
3	F1-0239	B	FHTFS M2.5 X 12.7 LRS PAGER SCREW	4
4	M2-0134	A	NUMBER LABEL	1
5			KOTL VIBE MOTOR	1
6	K1-0199	D	LRS CS6 BOTTOM COVER	1
7			BATTERY PACK	1
8	K5-0016	D	LRS CS6 TOP - ULTRASONIC WELDING	1
9	M1-0093	A	LRS BOTTOM LABEL	1
10	P1-0077	B	MOTOR FOAM TAPE	1
11	M2-0143	A	LRS LABEL WITH NUMBER	1
12	M2-0142	A	LRS_CS6_NUMBER LABEL	1

IN2 INNOVATION

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MM[INCH]
TOLERANCES:
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

TITLE: LRS CS6 ASSEMBLY

DRAWN BY	DWG. NO.	REV
JP 5/1/14	99-0272	D
JAG	SCALE: 1:1	SHEET 2 OF 2

FILENAME: LRS_CS6_ASSY

The RX-CS6 and RX-CS7 both have hardware available so photographs can be presented to illustrate the differences between them.

Fully assembled versions of both products are pictured below. Plastic housings are identical with the exception of a small, clear light pipe in the upper right hand corner on the bottom of the RX-CS7.

Labeling differences on the top cover are self-evident in the photos.


LRS
Long Range Systems
LRSUS.COM
100
Long Range Systems, LLC
FCC ID: 2AB6ORXCS6
IC: 5501A-RXCS6
MODEL: RX-CS6
LRS
Long Range Systems
LRSUS.COM
Long Range Systems, LLC
FCC ID: 2AB6ORXCS7
IC: 5501A-RXCS7
MODEL: RX-CS7

Photographs of the PCBAs are shown below to illustrate the electrical differences in how the common PCB is populated.

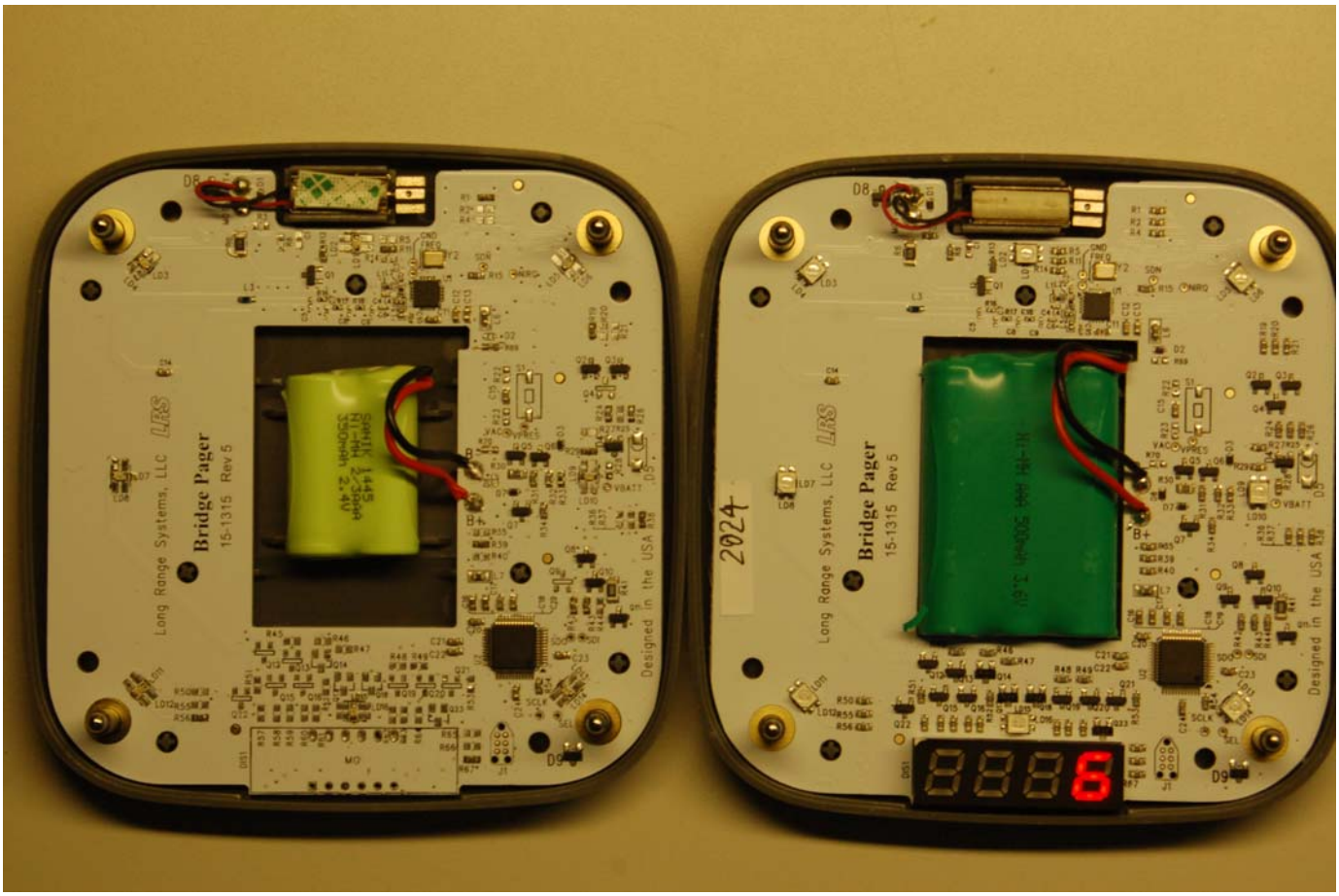
From the top view, the following differences can be observed:

- Battery pack size
  - 3-cell, full AAA on the RX-CS7
  - 2-cell, 2/3 AAA on the RX-CS6
- 7-segment LED display on the RX-CS7
- LED type found along the periphery (4 corners and 4 sides)
  - Tri-color RGB LEDs on the RX-CS7
  - Single-color red LEDs on the RX-CS6
- Resistors & transistors to support LED drive

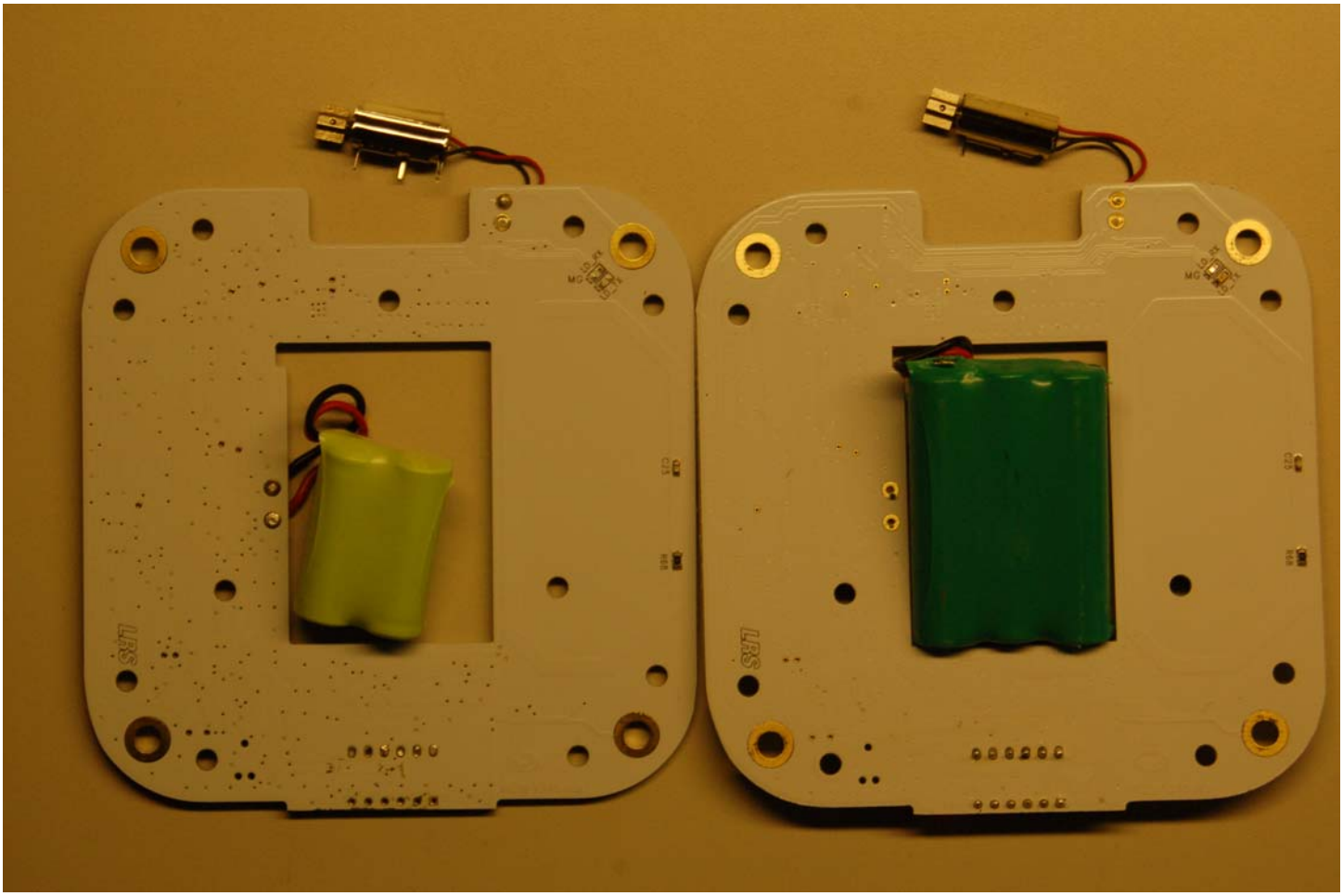
The battery size difference is associated with the amount of LED drive current required by each product variant.

Also note the common, identical features:

- Radio transceiver circuitry (top center, above the battery)
- PCB antenna (top left corner area)
- MCU (lower right corner area)
- Battery charging circuitry (right center area)



The back side of the PCBA is shown below. The only difference to note is that the RX-CS6 does not have an LED and a Phototransistor populated in the upper, right corner. These parts support light communication between stacked RX-CS7s.



I hope this helps to illustrate the differences in our products being submitted and why the CS-7 was chosen as a representative sample for testing purposes.

If you have any questions about what is contained here, please feel free to contact me directly.

Thank you,

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