

TYPE OF EXHIBIT: TUNE-UP PROCEDURE AND PARTS LIST

FCC PART: 2.1033 (c)(9)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-444

TYPE OF UNIT: UHF-FM Handheld Transceiver

FCC ID: AIERIT13-450

DATE: July 7, 2000

Included in this exhibit is the tune-up procedure, parts list and semiconductor function list for the SST-444.

The tune-up procedure and parts list included in this exhibit are excerpts of the Maintenance and Operating Manual for RITRON Model Patriot SST-444 UHF-FM Handheld Transceiver. The complete Maintenance and Operating Manual is included with this application for Certification as a separate exhibit.

Signed:



Michael A. Pickard - Project Engineer

SST-444 ALIGNMENT PROCEDURE

An authorized RF service technician must perform test and alignment of the SST-444. Do not attempt service of the SST-444 if not completely familiar with the operation of frequency synthesized radio operation. The SST-444 can operate in either Narrow Band (2.5 KHz deviation) or Wide Band (5 KHz deviation) systems.

RECOMMENDED TEST EQUIPMENT

- | | |
|--|---|
| 1) 0 to +15 VDC, 2A current-limited power supply | 3) Oscilloscope (to 20 MHz) |
| 2) RF Communications Test Set (to 470 MHz) with:
- FM Deviation Meter
- RF Wattmeter
- Frequency Counter (to 470 MHz)
- SINAD Measuring Device | 4) VTVM or DMM
5) RITRON PC Programming Kit
6) RITRON SST-SRVBD Test Module |

RADIO PREPARATION

- 1) Make sure the radio battery is fully charged.
- 2) Install the RITRON SST-SRVBD test assembly and serial programming cable as follows:
 - a) Remove the SST-444 antenna from the radio.
 - b) Plug the SST-SRVBD into the 2.5 mm and 3.5 mm jacks on top of the radio.
 - c) Screw the SST-SRVBD antenna nut fully into the SST-444 antenna connector.
 - d) Set the jumper on the SST-SRVBD assembly to the "UHF" position.
 - e) Connect the serial programming cable from the PC computer (with the RITRON PC programming kit software installed) to the SST-SRVBD test assembly
- 3) Connect the FM communications test set to the BNC connector on the SST-SRVBD test assembly.
- 4) Turn on the radio to place it in operating mode.
- 5) From the PC Programmer on-screen menu, select "Tune Radio" to display the Alignment screen.
- 6) Set the RF Communications Test set to the Alignment Frequency indicated on the Alignment screen.
- 7) Press the appropriate "Select" button on the Alignment screen to make the following adjustments:

<u>SELECT</u>	<u>Alignment</u>
Frequency	Transmit frequency
Mod Bal	Modulation balance
Tone	QC/DQC tone encode deviation – wide band QC/DQC tone encode deviation – narrow band
Voice	Voice deviation with no tone – wide band Voice deviation with no tone – narrow band Voice deviation with tone – wide band Voice deviation with tone – narrow band
Power	Low transmitter power High transmitter power

- 8) After you have completed alignment of the SST-444, turn the radio off. This will remove the test frequencies and return to operation on the customer's programmed frequencies.

SST-444 ALIGNMENT PROCEDURE

REFERENCE FREQUENCY

- 1) Make sure that the unit has been switched on and is at room temperature (approximately +25° C)
- 2) Select "Frequency" from the PC Programmer "Alignment" screen.
- 3) Set the RF communications test set to the Alignment Frequency on the Alignment screen.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) Transmitter frequency error should be less than +/- 500 Hz.
- 6) If frequency adjustment is required, press the left arrow on the tuning bar to lower the frequency or the right arrow to raise the frequency.
- 7) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

MODULATION BALANCE

Transmitter modulation balance has been set at the factory and should not require adjustment.

- 1) Select "Mod Bal" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the Alignment Frequency on the Alignment screen.
- 3) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 4) Check the de-modulated waveform for a 20 Hz square wave.
- 5) If adjustment of the modulation balance is required, press the left arrow on the tuning bar to flatten the top of the waveform or the right arrow to reduce overshoot.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

TRANSMITTER TONE DEVIATION

Transmitter tone deviation has been set at the factory and should not require adjustment.

- 1) Select "Tone" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select either "Wide Band" or "Narrow Band" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the tone deviation is required, press the left arrow on the tuning bar to lower deviation or the right arrow to raise deviation.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

SST-444 ALIGNMENT PROCEDURE

TRANSMITTER VOICE DEVIATION

Transmitter voice deviation has been set at the factory and should not require adjustment.

- 1) Select "Voice" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select "Voice Only - Wide Band", "Voice Only - Narrow Band", "Voice & Tone – Wide Band", or "Voice & Tone – Narrow Band" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the voice deviation is required, press the left arrow on the tuning bar to lower deviation or the right arrow to raise deviation.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

TRANSMITTER POWER

Transmitter power has been set at the factory and should not require adjustment.

- 1) Select "Power" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select "Low Power" or "High Power" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the transmitter power is required, press the left arrow on the tuning bar to lower power or the right arrow to raise power.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

RECEIVER SENSITIVITY AND SQUELCH

The SST-444 receiver is factory tuned for a frequency range of 460 - 470 MHz. The SST-444 receiver is configured from the factory for Wide Band operation, with a Narrow Band Model available as an option. The SST-444 receiver bandwidth is configured on a per radio basis, it cannot be switched on a per channel basis.

The receiver may be tuned to any 10 MHz frequency band between 450-470 MHz.

- 1) Program the radio to a receive frequency in the middle of the desired 10 MHz band.
- 2) Set the RF communications test set generator to a frequency exactly 87.3 MHz below the programmed receive frequency at a RF level of approximately –40 dB. Modulate the RF signal with a 1 KHz tone at 3 KHz deviation for wide band, 1.5 KHz deviation for low band.
- 3) Connect an 8-Ohm speaker to the 3.5mm audio jack on the SST-SRVBD test assembly.
- 4) Adjust L101 for the minimum received signal at this image frequency.

SST-444 ALIGNMENT PROCEDURE

- 5) Set the RF Communications Test Set generator to the programmed receive frequency at a RF level of –120 dB. Modulate the RF signal with a 1 KHz tone at 3 KHz deviation for wide band, 1.5 KHz deviation for low band.
- 6) Adjust L103 and L104 for the best receiver SINAD as measured across the 8-Ohm speaker.
- 7) Check receiver sensitivity at the lowest and highest operating frequencies and make slight adjustment to L103 and L104 to balance between the two, if necessary.

RECEIVER NOISE SQUELCH

The noise squelch sensitivity is set at the factory for a 12dB SINAD signal. Using the PC Programmer, squelch sensitivity can be adjusted on a per channel basis by adjusting the “Squelch Tightener” number to between 0-7. The higher number will require a stronger received signal to open squelch.

- 1) Select “Channel” from the PC Programmer “Edit” menu on the main screen.
- 2) Select the channel to be set and press “Edit” button.
- 3) Set the RF communications test set to the transmit frequency on the screen.
- 4) Enter a Squelch Tightener number between 0-7.
- 5) Press the “OK” button on the Channel Edit screen to return to the Channel List screen.
- 6) Select any other channels to be set.
- 7) Press the “OK” button on the Channel List screen to return to the Main screen.
- 8) Select “Program Radio” from the PC Programmer “Radio” menu to save all setting changes.

SYNTHESIZER

The synthesizer is preset at the factory for operation between 460 and 470 MHz. There is no manual adjustment to center the control voltage, with all adjustment performed by the factory selection of fixed capacitor C413. Do not attempt to adjust the synthesizer control unless a key component in the synthesizer has been replaced. Key components do not include the Y302 reference frequency TCVCXO or IC401 synthesizer IC. Synthesizer alignment errors cause poor operation at temperature extremes.

Should adjustment of the VCO control voltage be necessary, the radio must first be disassembled and powered up at 7.5 VDC. The following procedure defines testing of the VCO control voltage:

- 1) Select the channel that has the lowest receive frequency.
- 2) Connect a VTVM, DVM or oscilloscope to Test Point 1 and measure the VCO control voltage. This voltage should be no less than 1.5 VDC.
- 3) Select the channel that has the highest receive frequency and measure Test Point 1. The control voltage should be no higher than 4.5 VDC.
- 4)
 - a) If adjustment of the VCO control voltage is required, remove the synthesizer shield top.
 - b) Replace C413 with a capacitor value that allows VCO control voltages between 1.5 and 4.5 VDC for the operating frequencies desired. Decreasing the value of C413 will raise the operating frequency of the VCO while increasing the value will lower the VCO frequency.
 - c) Replace the top of the synthesizer shield.

SST-444 SCHEMATIC REFERENCE PARTS LIST

NOTE: This parts list reflects the most current component values. If a component value given in the schematic differs from this list, the parts list should be considered the most current.

Last Update: June 13, 2000

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
CAPACITORS						
C101	151103A3	3.3pf NPO 0805 CHIP CAPACITOR	1065	3824	270	Top
C102	151102A2	2.2PF NPO 0805 50V CHIP CAP	949	3929	180	Top
C103	15110120	12PF NPO 0805 50V CHIP CAP	791	4059	90	Top
C104	15110220	22PF NPO 0805 50V CHIP CAP	909	3824	270	Top
C105	15110180	18PF NPO 0805 50V CHIP	1018	3608	270	Top
C106	15110180	18PF NPO 0805 50V CHIP	869	3716	180	Top
C107	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	734	3620	180	Top
C108	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	675	3519	90	Top
C109	151106A8	6.8PF NPO 0805 50V CHIP	637	3994	90	Top
C110	151103A9	3.9PF NPO 0805 50V CHIP	557	3993	270	Top
C111	151103A3	3.3pf NPO 0805 CHIP CAPACITOR	516	4099	180	Top
C112	151103A3	3.3pf NPO 0805 CHIP CAPACITOR	382	4099	180	Top
C113	15110100	10PF NPO 0805 50V CHIP CAP	476	3993	270	Top
C114	151108A2	8.2PF NPO 0805 50V CHIP	275	4059	270	Top
C115	15110150	15PF 0805 NPO 50V CHIP CAP	380	3786	0	Top
C116	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	276	3382	180	Top
C117	15110150	15PF 0805 NPO 50V CHIP CAP	199	3598	180	Top
C118	15110470	47PF NPO 0805 50V CHIP	160	3491	90	Top
C119	15181472	.0047uF CAPACITOR, CHIP, 0402, X7R,5/10%	485	3367	270	Top
C120	151108A2	8.2PF NPO 0805 50V CHIP	407	3548	0	Bottom
C121	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	138	947	90	Bottom
C122	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	451	1669	0	Bottom
C123	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	450	946	90	Bottom
C124	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	349	884	0	Bottom
C125	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	350	1364	0	Bottom
C126	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	441	1557	0	Bottom
C127	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	69	2203	0	Bottom
C128	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	225	2114	270	Bottom
C129	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	392	1802	0	Bottom
C130	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	571	904	90	Bottom
C131	15110330	33PF NPO 0805 50V CHIP	38	1263	0	Bottom
C132	15110330	33PF NPO 0805 50V CHIP	64	1156	270	Bottom
C133	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	69	2100	0	Bottom
C134	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	39	1635	90	Top
C135	15110220	22PF NPO 0805 50V CHIP CAP	171	1533	180	Bottom
C201	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1302	3153	90	Bottom
C202	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	871	3384	270	Bottom
C203	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	997	3248	90	Bottom
C204	152A8105	1MFD 16V ~3.2 X 1.6~ CHIP TANTALUM	1100	3496	270	Top
C205	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1019	3494	90	Top
C206	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1748	3308	90	Bottom
C207	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1748	3104	90	Bottom
C208	15110100	10PF NPO 0805 50V CHIP CAP	1796	2406	90	Top
C209	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1427	2284	90	Bottom
C210	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1492	2264	90	Bottom
C211	15110560	56PF NPO 0805 50V CHIP CAPACITOR	1715	2211	270	Top
C212	15110101	100PF NPO 0805 50V CHIP CAP	1788	3787	90	Top
C213	151103A9	3.9PF NPO 0805 50V CHIP	1682	3828	180	Top
C214	15110100	10PF NPO 0805 50V CHIP CAP	1652	4093	90	Top
C215		FACTORY SELECT	1439	4093	90	Top
C216	15110101	100PF NPO 0805 50V CHIP CAP	953	4136	90	Top
C217	151105A6	5.6PF NPO 0805 50V CHIP CAPACITOR	1035	4136	90	Top
C301	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	774	817	180	Bottom

SST-444 SCHEMATIC REFERENCE PARTS LIST

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
C302	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	275	522	270	Top
C303	152B4226	22uF 6.3V 3.4 X 2.8 CHIP TANTALUM CAP	199	647	180	Top
C304	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1261	4590	90	Bottom
C305	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1027	427	0	Top
C306	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	613	402	270	Top
C307	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	20	4621	270	Top
C308	15111102	.001MF X7R 0805 50V CHIP CAP	0	0	0	Bottom
C309	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	496	1867	90	Bottom
C310	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1107	3264	0	Bottom
C311	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1229	2967	90	Bottom
C312	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	544	4622	270	Top
C313	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	169	3033	270	Top
C314	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2568	180	Bottom
C315	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2271	180	Bottom
C316	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	826	2291	180	Top
C317	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2321	0	Bottom
C318	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	826	2371	180	Top
C319	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2407	0	Bottom
C320	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2410	180	Bottom
C321	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2488	180	Bottom
C322	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2311	180	Bottom
C323	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2771	180	Bottom
C324	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	969	2221	0	Top
C325	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2687	180	Bottom
C326	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2607	180	Bottom
C327	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2371	180	Bottom
C328	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2446	0	Bottom
C329	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	638	2501	270	Bottom
C330	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2571	0	Bottom
C331	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2610	0	Bottom
C332	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	737	2672	270	Bottom
C333	152A6475	4.7UF 10V A-SIZE TANTALUM CHIP CAP	502	2703	180	Top
C334	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	95	2765	180	Bottom
C335	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	420	2842	270	Bottom
C336	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	454	3156	90	Bottom
C337	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	724	3558	270	Bottom
C338	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	254	3129	90	Top
C339	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	245	2945	270	Top
C340	15111333	.033MFD X7R 0805 50V CHIP CAP	366	2665	270	Bottom
C341	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	585	2328	270	Bottom
C342	15110821	820PF NPO 0805 50V CHIP CAP	638	2964	180	Bottom
C343	15111122	.0012MF X7R 0805 50V CHIP	637	3045	180	Bottom
C344	15181472	.0047uF CAPACITOR, CHIP, 0402, X7R,5/10%	184	2436	0	Top
C345	15181472	.0047uF CAPACITOR, CHIP, 0402, X7R,5/10%	269	2436	0	Top
C346	152A8105	1MFD 16V ~3.2 X 1.6~ CHIP TANTALUM	614	2232	90	Top
C347	15180180	18pF CAPACITOR, CHIP, 0402, COG, 5%	286	2500	90	Top
C348	15119473	.047uF X7R 0805 25V CHIP CAPACITOR	474	2595	0	Top
C349	15111333	.033MFD X7R 0805 50V CHIP CAP	127	2621	90	Bottom
C350	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	493	3156	90	Bottom
C351	15181222	.0022uF CAPACITOR, CHIP, 0402, X7R,5/10%	19	2670	180	Top
C352	15180100	10pF CAPACITOR, CHIP, 0402, COG, 5%	436	3228	90	Top
C353	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	593	3133	180	Top
C354	15180221	220pF CAPACITOR, CHIP, 0402, COG, 5%	379	2436	90	Bottom
C355	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	301	2435	90	Bottom
C356	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	258	2393	90	Bottom
C357	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	153	2415	180	Top
C358	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	585	2498	90	Bottom
C359	15180100	10pF CAPACITOR, CHIP, 0402, COG, 5%	490	2589	90	Bottom
C360	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	470	2270	270	Top
C361	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	492	2074	0	Top
C362	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	981	752	270	Bottom

SST-444 SCHEMATIC REFERENCE PARTS LIST

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
C363	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	1231	427	0	Top
C364	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1058	503	180	Bottom
C365	01503212	220MF 10V ELT CAPACITOR, 5mm HEIGHT	1491	5052	0.302	Top
C366	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1482	659	90	Bottom
C367	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1357	798	90	Bottom
C368	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	247	2708	270	Bottom
C369	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	664	2454	90	Top
C401	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1566	1966	270	Top
C402	151101A5	1.5PF NPO 0805 50V CHIP	1640	194	90	Top
C403	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1680	1828	90	Top
C404	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1066	1850	180	Top
C405	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1353	2013	180	Top
C406	151101A5	1.5PF NPO 0805 50V CHIP	1182	1785	270	Top
C407	151104A7	4.7PF 0805 50V CHIP CAP.	1463	1604	0	Top
C408	151104A7	4.7PF 0805 50V CHIP CAP.	1572	1634	270	Top
C409	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	980	1766	90	Top
C410	151104A7	4.7PF 0805 50V CHIP CAP.	1355	158	270	Top
C411	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1262	130	270	Top
C412	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1047	1788	90	Top
C413	151101A8	1.8PF NPO 0805 50V CHIP	1462	1441	270	Top
C414	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	722	1625	0	Top
C415	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1535	969	270	Top
C416	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1731	1114	270	Top
C417	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1538	1356	90	Top
C418	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	677	1121	180	Top
C419	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	678	1201	180	Top
C420	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	678	1240	180	Top
C421	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1053	1576	180	Top
C422	15110100	10PF NPO 0805 50V CHIP CAP	1119	1512	180	Top
C423	151101A0	1.0PF NPO 0805 50V CHIP	1256	1400	0	Top
C424	151108A2	8.2PF NPO 0805 50V CHIP	1187	1252	270	Top
C425	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1069	937	90	Top
C426	15111222	.0022uF X7R 0805 50V CHIP CAPACITOR	832	922	180	Top
C427	152AB334	.33MF 35V ~3.2X1.6~ CHIP TANTALUM	812	1015	0	Top
C428	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	855	1473	270	Top
C429	15111333	.033MFD X7R 0805 50V CHIP CAP	1029	1015	0	Top
C430	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	971	1460	270	Top
C431	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	687	1393	180	Top
C432	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	766	1100	180	Top
C433	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	932	1460	90	Top
C434	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1101	1264	0	Top
C435	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	687	1355	180	Top

DIODES

CR101	48D100A2	MA4CP101A PIN DIODE, SOT-23	1178	3820	90	Top
CR102	48E1005G	MMBD-352LT1 SCHOTTKY DIODE SOT23	908	3608	270	Top
CR103	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	356	2147	0	Bottom
CR201	48D100A2	MA4CP101A PIN DIODE, SOT-23	1302	3991	0	Top
CR301	48B61012	1N4742A ZENER DIODE, 12V 1W DL-41 MELF	991	604	90	Top
CR302	48AA01SA	DIODE, 1A, 50V, SMT, D0214AC CASE	1154	630	90	Top
CR303	48A1005B	MMBD6100, DUAL DIODES, COM CATHODE, SOT2	363	431	90	Top
CR304	48A100A3	MMBD2835, DUAL DIODES, COM ANODE, SOT-23	65	4089	0	Top
CR305	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	626	2802	0	Bottom
CR306	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	449	2956	90	Bottom
CR307	48AA01SA	DIODE, 1A, 50V, SMT, D0214AC CASE	1290	630	90	Top
CR401	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	695	1808	90	Top
CR402	48C1004E	MMBV-105G DIODE VVC, SOT-23	1147	1115	180	Top
CR403	48C1004G	MMBV-2101L DIODE VVC SOT-23	1119	1400	180	Top
CR404	48A1004D	MMBV3401 PIN/UHF DIODE SOT-23	1552	1239	270	Top

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<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
FUSE						
F301	06000040	WIRE; #40AWG TINNED BUS (INCHES)	754	603	270	Bottom
INTEGRATED CIRCUITS						
IC101	31030003	MC3371D SUBSYSTEM IC, SO-16	314	1158	270	Bottom
IC301	314G0301	MCU, 28 PIN, SOIC, SST/JMX 4-SERIES v01	992	2546	0	Bottom
IC302	31210005	EEPROM, 512X8, 24C04	989	2501	180	Top
IC303	310K0004	LMV324MT RAIL TO RAIL QUAD OP AMP	474	2442	180	Top
IC304	311K0003	SWITCH,ANALOG,TRIPLE SPDT,4053,TSSOP-16	241	2683	0	Top
IC305	310K0003	LMV358MM DUAL OP AMP, GP LV R/R TSSOP	404	3120	0	Top
IC306	310K0001	DS1806E 6 PROG POTS 10K OHM 20-PIN TSSOP	242	2185	0	Top
IC307	31010004	LM386MX-1 AUDIO AMP SO-8	1331	567	90	Bottom
IC308	310K0002	MAX7410 5TH ORDER SW CAP BUTTERWORTH LPF	407	2935	0	Top
IC309	310E0002	REGULATOR,LDO,LP2980,5V,W ENABLE,SOT-25	162	504	0	Top
IC401	313K0004	SYNTHESIZER TSSOP MC145192	891	1265	180	Top
JACKS						
J301	02100001	2.5MM PC-MT JACK; ANT-CHGR	1178	4668	0	Top
J303	02100053	3.5MM STEREO JACK; PANEL MOUNT	1560	4646	0	Top
INDUCTORS						
L101	01850201	1.5T SW COIL W/5MM SHIELD & ALUM CORE	721	4291	90	Top
L102	18110151	CHIP INDUCTOR .15uhy	629	3722	270	Top
L103	01850201	1.5T SW COIL W/5MM SHIELD & ALUM CORE	484	4291	270	Top
L104	01850201	1.5T SW COIL W/5MM SHIELD & ALUM CORE	204	4292	270	Top
L105	18433103	3T AIRCOIL, SMT, 8.0nH, .120 X .145	332	3901	180	Top
L106	18110102	CHIP INDUCTOR 1.0uhy	280	3474	0	Top
L107	18433101	1T AIRCOIL, SMT 2.5nH, .120 X .145	480	3492	180	Top
L108	18110681	CHIP INDUCTOR .68uhy	51	1648	180	Bottom
L201	18414104	4.5T AIRCOIL #24AWG .0625" ID RHH SMT	929	3459	270	Top
L202	18110150	INDUCTOR, CHIP, 15nH	1454	2281	180	Top
L203	18414104	4.5T AIRCOIL #24AWG .0625"ID RHH SMT	1695	3948	90	Top
L204	18414104	4.5T AIRCOIL #24AWG .0625"ID RHH SMT	1479	3945	180	Top
L205	18110102	CHIP INDUCTOR 1.0uhy	1230	3667	0	Top
L206	18414105	5.5T AIRCOIL #24AWG .0625"ID RHH SMT	1093	3979	90	Top
L207	18433102	2T AIRCOIL SMT 5.0nH .120 X .145	932	4343	0	Top
L401	18433209	9T AIRCOIL, SMT, 9.85 nH, .159 X .056	1376	1418	270	Top
L402	18414109	9.5T AIRCOIL #24AWG .0625"ID RHH SMT	1352	118	0	Top
L403	18110820	INDUCTOR, CHIP 82nH	1548	109	270	Top
L404	18110101	CHIP INDUCTOR 0.1uhy	1187	966	270	Top
L405	18110101	CHIP INDUCTOR 0.1uhy	753	1485	0	Top
MICROPHONE						
M301	05500037	MICROPHONE; ELECTRET, MINIATURE	0	0	0	Bottom
CONNECTORS						
P201	25500700	CONTACT, PCB MNT, ANTENNA,SST	896	4550	90	Top
P302	21310021	HEADER, 2 PIN SIDE ENTRY SHROUDED	754	737	0	Top
TRANSISTORS						
Q101	4801002A	MMBT3906 PNP, SOT23	675	3405	270	Top
Q102	482100V0	TRANSISTOR, NPN, UHF, SOT-23, PBR-941	734	3828	0	Top
Q103	4841006U	MMBFJ309LT1, N-CHAN, RF, SOT23	340	3639	270	Top
Q104	4821003B	MMBT918LT1 VHF SOT23 (3B)	270	3548	0	Bottom

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Q105	4821003B	MMBT918LT1 VHF SOT23 (3B)	38	1374	180	Bottom
Q201	4801002A	MMBT3906 PNP, SOT23	908	3268	90	Bottom
Q202	4801001Q	MMBT5088 NPN, SOT-23	766	3268	270	Bottom
Q203	04801503	M68710H 2W RF MODULE 450-470 MHz 6.0V	1819	2710	90	Top
Q204	482100V0	TRANSISTOR, NPN, UHF, SOT-23, PBR-941	1603	2274	270	Top
Q301	48010R02	MUN2211T1, NPN, INT 10K/10K BIAS, "8A",	1133	2987	90	Bottom
Q302	4801002A	MMBT3906 PNP, SOT23	1094	3124	90	Bottom
Q303	4801001Q	MMBT5088 NPN, SOT-23	583	519	0	Top
Q304	480100DH	BCW68GLT1 .8AMP PNP SOT-23	445	668	0	Top
Q306	4801002A	MMBT3906 PNP, SOT23	1222	2259	90	Top
Q307	4801001Q	MMBT5088 NPN, SOT-23	964	615	0	Bottom
Q308	480100DH	BCW68GLT1 .8AMP PNP SOT-23	1162	712	0	Bottom
Q401	482100V0	TRANSISTOR, NPN, UHF, SOT-23, PBR-941	1470	1919	270	Top
Q402	482100V0	TRANSISTOR, NPN, UHF, SOT-23, PBR-941	1289	1920	270	Top
Q403	482100V0	TRANSISTOR, NPN, UHF, SOT-23, PBR-941	1460	1714	270	Top
Q404	4801001Q	MMBT5088 NPN, SOT-23	837	1766	270	Top
Q405	4801006A	MUN2111T1, PNP, INT 10K/10K BIAS, SC-59	1634	1376	270	Top
Q406	48010R02	MUN2211T1, NPN, INT 10K/10K BIAS, "8A",	1691	1234	0	Top

RESISTORS

R101	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	579	3344	90	Top
R102	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	734	3581	180	Top
R103	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	774	3716	270	Top
R104	47180392	3.9K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	829	3810	270	Top
R105	47180561	560 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	714	3519	270	Top
R106	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	475	3610	270	Top
R107	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	388	3484	180	Bottom
R108	47180223	22K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	251	3450	180	Bottom
R109	47180101	100 OHM RESISTOR, CHIP, 0402,1/16W,5%	167	3450	180	Bottom
R110	47180154	150K OHM RESISTOR, CHIP, 0402, 1/16W,5%	411	946	270	Bottom
R111	47180122	1.2K OHM RESISTOR, CHIP, 0402, 1/16W,5%	529	904	270	Bottom
R112	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	349	966	180	Bottom
R113	47180123	12K OHM RESISTOR, CHIP, 0402, 1/16W,5%	489	946	90	Bottom
R114	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	551	966	0	Bottom
R115	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	161	2174	270	Bottom
R116	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	161	2089	90	Bottom
R117	47180393	39K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	117	1676	90	Top
R118	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	79	1533	90	Bottom
R119	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	59	1470	180	Bottom
R120	47180681	680 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	78	1635	90	Top
R201	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	790	3384	90	Bottom
R202	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	669	3248	270	Bottom
R203	47180181	180 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	908	3151	90	Bottom
R204	47100270	27 OHM 0805 CHIP RESISTOR	1796	2211	270	Top
R205	47180822	8.2K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1555	2244	0	Bottom
R206	47180182	1.8K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1618	2264	270	Bottom
R207	47180181	180 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1184	3549	270	Top
R208	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	879	4148	90	Top
R301	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	536	686	90	Top
R302	47100471	470 OHM 0805 CHIP RES.	475	479	270	Top
R303	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	325	546	90	Top
R304	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	623	639	270	Top
R305	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	402	547	270	Top
R306	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	535	1867	90	Bottom
R307	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	995	3143	90	Bottom
R308	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1127	3328	180	Bottom
R309	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1257	2891	270	Bottom
R310	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2191	0	Bottom
R311	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	504	4622	270	Top
R312	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2230	0	Bottom

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R313	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1184	2376	270	Top
R314	47180472	4.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1260	2375	270	Top
R315	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	738	2841	90	Bottom
R316	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	761	2557	90	Top
R317	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	800	2506	90	Top
R318	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2521	180	Bottom
R319	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	737	2756	270	Bottom
R320	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	698	2879	270	Bottom
R321	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	636	2899	0	Bottom
R322	47180393	39K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	294	3070	270	Bottom
R323	47180823	82K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	371	3070	270	Bottom
R324	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	332	3070	270	Bottom
R325	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	416	3156	90	Bottom
R326	47180183	18K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	585	2413	270	Bottom
R327	47180183	18K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	624	2328	90	Bottom
R328	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	493	2774	270	Bottom
R329	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	168	2374	90	Top
R330	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	664	2369	90	Top
R331	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	269	2396	0	Top
R332	47180154	150K OHM RESISTOR, CHIP, 0402, 1/16W,5%	207	2501	90	Top
R333	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	246	2500	90	Top
R334	47180273	27K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	566	2588	90	Top
R335	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	60	2787	270	Top
R336	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	23	2787	270	Top
R337	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	532	3156	270	Bottom
R338	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	397	3228	90	Top
R339	47180394	390K OHM RESISTOR, CHIP, 0402, 1/6W, 5%	420	2347	270	Bottom
R340	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	340	2436	90	Bottom
R341	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	239	2455	0	Bottom
R342	47180184	180K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	153	2376	180	Bottom
R343	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	731	3133	0	Bottom
R344	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	67	2416	180	Bottom
R345	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	153	2455	180	Bottom
R346	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	732	3094	180	Top
R347	47180274	270K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	568	2588	90	Bottom
R348	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	529	2589	90	Bottom
R349	47180823	82K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	29	2146	0	Top
R350	47180564	560K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	29	2198	0	Top
R351	47180222	2.2K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	431	2269	90	Top
R352	47100475	4.7M OHM 0805 CHIP RESISTOR	44	2406	0	Top
R353	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	453	2158	180	Top
R354	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	847	653	180	Bottom
R355	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	912	772	90	Bottom
R356	47180273	27K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1293	780	90	Bottom
R357	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1147	534	90	Bottom
R358	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1187	534	90	Bottom
R359	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	1482	773	270	Bottom
R401	47180221	220 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1517	2006	90	Top
R402	47180101	100 OHM RESISTOR, CHIP, 0402,1/16W,5%	1640	1828	270	Top
R403	47180272	2.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1450	2013	180	Top
R404	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1452	1825	180	Top
R405	47180101	100 OHM RESISTOR, CHIP, 0402,1/16W,5%	1153	1900	270	Top
R406	47180272	2.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1193	1900	270	Top
R407	47180470	47 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1086	1788	270	Top
R408	47180470	47 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1067	1726	180	Top
R409	47180271	270 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1636	1655	90	Top
R410	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1266	162	5180	Top
R411	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1363	1694	270	Top
R412	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1271	1827	180	Top
R413	47180472	4.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	677	1903	0	Top
R414	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1634	1531	270	Top

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R415	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1641	1068	90	Top
R416	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1138	1576	0	Top
R417	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	938	937	90	Top
R418	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	938	1022	90	Top
R419	47180822	8.2K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	718	906	0	Top
R420	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	718	946	180	Top
R421	47180223	22K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1101	1303	0	Top
R422	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	894	1461	90	Top
R423	47180474	470K OHM RESISTOR, 0402, 1/16W, 5%	850	1100	180	Top
SPEAKER						
SP301	05500045	SPEAKER, 45MM, 1W, LOW PROFILE SST/RTX	0	0	0	Bottom
SWITCHES						
SW301	05100042	SWITCH SPST MOMENTARY MINI PC 260GM	268	4587	180	Top
SW302	05100042	SWITCH SPST MOMENTARY MINI PC 260GM	788	4588	180	Top
SW303	05100046	SWITCH, TACT LO PROFILE RT ANGLE 160gf	82	3097	270	Top
SW304	05100046	SWITCH, TACT LO PROFILE RT ANGLE 160gf	82	3948	270	Top
TRANSFORMER						
T101	05600018	455KHZ IF TRANSFORMER (5MM)	128	1822	180	Top
CRYSTAL						
Y302	23050003	TCVCXO, 14.400 MHz, 1.5 PPM, VC=30 PPM/V	146	837	90	Top
FILTERS						
YF101	02301403	43.650 MHz Crystal Filter +/-6.0KHz UM-1	44	3524	90	Top
YF102	02301013	FILTER,CERAMIC,450KHz,+/-7.5KHz,6 POLE	249	1614	90	Top
HARDWARE						
	1750240B	PCB, ML4 FR4 5UPM, .062 MIX, SST-444				
	25602500	CRYSTAL SUPPORT, RUBBER PAD, SMALL/UM-1				
	06001021	#28 AWG STRANDED WIRE; RED (INCHES)				
	06001023	#28 AWG STRANDED WIRE;GREEN INCHES				
	06001026	#28 AWG STRANDED WIRE; BLACK INCHES				
	06001029	#28 AWG STRANDED WIRE; BLUE INCHES				
	25105500	SHIELD, SST-PLUS SYNTHESIZER				
	25603000	FOAM, MOUNTING, SPEAKER,SST				
	25603900	SPACER, MIC FOAM, SST				
	25605700	MICROPHONE HOLDER, SST-PLUS				
	25900700	ADHESIVE, MTG, MIC HOLDER				
	26200800	HEATSINK, TOP, SST+				
	26200900	HEATSINK, BOTTOM, SST+				
	2811H401	SCREW #4-40 X .25 LG TRIM HEAD PHILLIPS				

SST-444 CASE ASSEMBLY PARTS LIST

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>
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MAIN CASE ASSEMBLY

13250000	CASE W/INSERT, PLASTIC, SST BLACK
13578000	DOOR, BATTERY, PLASTIC, SST 2-PC
13588000	LATCH, BATTERY DOOR, PLASTIC SST 2-PC
25106400	BATTERY DOOR HINGE RETAINER
25201500	RETAINER, PLASTIC, PTT, SST
25400600	BUSHING, THREADED, PLATED, ANTENNA SS
25603300	GRILLE CLOTH, SPEAKER, SST
25603400	DUAL JACK PLUG, RUBBER,SST
25606200	HINGE, BATTERY DOOR, SST
25800500	ACTUATOR, RUBBER,PTT,SST
25800600	ACTUATOR, RUBBER, TACT, SST
02802026	NUT; KNURLED; M4PO.5/2.5MM JACK
02802027	NUT; KNURLED; M6PO.5/3.5MM JACK
28112401	SCREW 4-40 X 1/4" PHFLST
28233G03	KNURLED NUT, ANTENNA, JMX

CASE BOTTOM ASSEMBLY

13564000	CASE, BOTTOM, PLASTIC, SST 2-PC
2142D021	CONNECTOR, CABLE ASSEMBLY, 2-POS, SST+
25400800	SPRING CONTACT, BATTERY, SST W/O TABSC
25400900	CONTACT BATTERY SST-PLUS (POLARIZED)
25604800	SPACER, PCB, FOAM, SST 2-PC

CASE LABELS

14220001	LABEL, CONTROLS, SST
14222029	LABEL, NAMEPLATE, SST
14290002	BLANK LABEL, .75" X .25" GLOSSY WHITE +
14200037	LABEL SST/JMX MFG DATE CODE
14200039	LABEL FCC SERIAL SST-450

BELT CLIP

25201600	BELT CLIP, PLASTIC, SST BLACK
2811B600	SCREW 6-32 X 1/4" PHTRST

BATTERY PACK AND INSULATOR

BPS-6N-SC	BATTERY,RECHG,7.2V NiCd,BLUE ,SST
14230088	LABEL, BATTERY, BPS-6N-SC, SST
25300600	INSULATOR, BATTERY, FIBRE, SST
25606000	FOAM SUPPORT, BATTERY JMX SERIES
25601600	BATTERY SHIM; ASSEMBLY ~X~ SERIES

ANTENNA

AFS-450	ANTENNA UHF MOLDED, 450-470 REG LEN SST
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PACKING MATERIALS

14210004	LOW BATTERY NOTICE LABEL
14312006	SHIPPING CARTON, CARDBOARD,SST
14321002	FOAM INSERT, PACKING, SST/MINI
14500008	MANUAL, OWNERS, JMX/SST
14500016	USER MANUAL SST-444
14540006	WARRANTY REGISTRATION CARD

TYPE OF EXHIBIT: SEMICONDUCTOR FUNCTION

FCC PART: 2.1033 (c)(10)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-444

TYPE OF UNIT: UHF-FM Handheld Transceiver

FCC ID: AIERIT13-450

DATE: July 7, 2000

DESCRIPTION:

The following list specifies the manufacturer, identification and function of each semiconductor device used in the SST-444 handheld transceiver.

<u>Schem ID</u>	<u>RITRON PN#</u>	<u>Manufacturer</u>	<u>Manufacturer ID</u>	<u>Function</u>
CR101	48D100A2	M/A Com, Inc.	MA4CP101A	TX/RX switching
CR102	48E1005G	Motorola Semiconductors	MMBD-352LT1	Voltage clamp
CR103	48A1005C	Motorola Semiconductors	MMBD7000LT1	Noise detection
CR201	48D100A2	M/A Com, Inc.	MA4CP101A	TX/RX switching
CR301	48B61012	Philips Semiconductors	BZD27-C12	Over voltage protection
CR302	48AA01SA	General Semiconductors	ASBCS1B	Reverse voltage protection
CR303	48A1005B	Motorola Semiconductors	MMBD6100LT1	Turn-on detection
CR304	48A100A3	Motorola Semiconductors	MMBD2835LT1	PTT switching
CR305	48A1005C	Motorola Semiconductors	MMBD7000LT1	Voltage clamp
CR306	48A1005C	Motorola Semiconductors	MMBD7000LT1	Voltage clamp
CR307	48A60001	General Semiconductors	ASBCS1B	Reverse voltage protection
CR401	48A1005C	Motorola Semiconductors	MMBD7000LT1	Biasing
CR402	48C1004E	Motorola Semiconductors	MMBV-105GLT!	VCO tuning
CR403	48C1004G	Motorola Semiconductors	MMBV-2101L	VCO modulation
CR404	48A1004D	Motorola Semiconductors	MMBV3401TI	TX/RX VCO switching
IC101	31030003	Motorola Semiconductors	MC3371BD	RX FM-IF subsystem
IC301	314G0301	Motorola Semiconductors	MC68HC705P6ACDW	Microcontroller
IC302	31210005	Atmel Corporation	AT24C04AN-10SC	EEPROM
IC303	310K0004	National Semiconductors	LMV324MT	Audio processing
IC304	311K0003	Philips Components	74LV4053PWDH	Audio signal switching
IC305	310K0003	National Semiconductors	LMV358MM	Audio processing
IC306	310K0001	Dallas Semiconductor	DS1806E	Audio signal level control
IC307	31010004	National Semiconductors	LM386MX-1	Audio amplifier
IC308	310K0002	Maxim Integrated Products	MAX7410CUA	Tone low pass filter
IC309	310E0002	National Semiconductors	LP2980AIM5X-5.0	+5 VDC voltage regulator
IC401	313K0004	Motorola Semiconductors	MC145192DT	Frequency synthesizer
Q 101	4801002A	Motorola Semiconductors	MMBT3906LT1	RX +V switching
Q 102	482100V0	Philips Components	PBR941	RX RF amplifier
Q 103	4841006U	ON Semiconductors	MMBFJ309LT1	RX Mixer
Q 104	4821003B	Motorola Semiconductors	MMBT918LT1	RX IF amplifier
Q 105	4821003B	Motorola Semiconductors	MMBT918LT1	RX 1st LO multiplier/amp
Q 201	4801002A	Motorola Semiconductors	MMBT3906LT1	TX +V switching
Q 202	4801001Q	Motorola Semiconductors	MMBT-5088LT1	TX +V switching
Q 203	04801503	Misubishi Electronic Device	M68710H	TX RF final amplifier
Q 204	482100V0	Philips Components	PBR941	TX RF driver amplifier

<u>Schem ID</u>	<u>RITRON PN#</u>	<u>Manufacturer</u>	<u>Manufacturer ID</u>	<u>Function</u>
Q 301	48010R02	Motorola Semiconductors	MUN2211T1	PTT detection
Q 302	4801002A	Motorola Semiconductors	MMBT3906LT1	PTT detection
Q 303	4801001Q	Motorola Semiconductors	MMBT-5088LT1	Battery +V switching
Q 304	480100DH	Motorola Semiconductors	BCW68GLT1	Battery +V switching
Q 306	4801002A	Motorola Semiconductors	MMBT3906LT1	+5V switching
Q 307	4801001Q	Motorola Semiconductors	MMBT-5088LT1	Audio amplifier enable
Q 308	480100DH	Motorola Semiconductors	BCW68GLT1	Audio amplifier +V switching
Q 401	482100V0	Philips Components	PBR941	VCO buffer amplifier
Q 402	482100V0	Philips Components	PBR941	VCO buffer amplifier
Q 403	482100V0	Philips Components	PBR941	VCO oscillator
Q 404	4801001Q	Motorola Semiconductors	MMBT-5088LT1	VCO voltage de-coupling
Q 405	4801006A	Motorola Semiconductors	MUN2111LT1	TX/RX VCO switching
Q 406	48010R02	Motorola Semiconductors	MUN2211T1	TX/RX VCO switching