Cobb Regional Trunked Radio System
Subscriber Acceptance Test Plan

Trunked Radio Infrastructure Tested	
Manufacturer	Motorola
Infrastructure Release/Version Identifier	**ASTRO 25 7.17.2**
Infrastructure Type	APCO Project 25 Trunking
Operating Freq. Range	700 MHz / 800 MHz

Table 1

Subscriber Units Tested		
Manufacturer	**Model and Description**	**Hardware/Software Release/Version Identifier**

Table 2

Test location	
System	Cobb Regional Radio System
Test Location/Address	140 N Marietta Parkway MW Marietta GA, 30080
Date(s) of test	
Report Date of Issue	

Table 3

Normative References		
Publication	**Date**	**Title**
TIA-102.CABC-A		Project 25 Interoperability Test Procedures Voice Operation in Trunked Systems

Table 4

Informative References	

Publication	Date	Title
PN-3-0312 (TSB-102.CBBJ)		Project 25 Compliance Assessment Program – Definition of Compliance Assessment – Trunking Interoperability

Table 5

Test Case Verdicts	
No test performed	-
Test does not apply to the test object	N/A
Test object meets requirements	P (Pass)
Test object does not meet requirements	F (Fail)
Test object is not conclusive	I (Inconclusive)

Table 6

Infrastructure Under Test; Important Configuration Notes	
Test Reference	Notes

Table 7

The radio under test should be programmed with the following talk groups: *{to be determined}*

Alias	TG (Dec)	TG (Hex)	Notes
DEMO 1	2300	0x8FC	Unencrypted
DEMO 2	2369	0x941	Unencrypted
DEMO 3	2370	0x942	Unencrypted
DEMO 4	2371	0x943	Unencrypted
DEMO ATG	2772	0xAD4	Unencrypted, Multigroup
SERVICE	2321	0x911	Unencrypted
NE MAINT	2324	0x914	Unencrypted
APCO 1	9512	0x2528	Unencrypted, 700 MHz capable
INVALID	9999	0x270F	Unencrypted, Invalid talk group

Subscriber Unit Acceptance Test Detail	
Test Reference	**Test Description/Procedure**
1.1 – Valid registration	Use Affiliation Display: Radio Viewer to verify unit and talkgroup affiliation from radio under test.
1.2 – Registration, invalid radio	Program radio under test with invalid individual ID 999999/0xF423F. Use Affiliation Display: Radio Viewer to verify no talkgroup or unit affiliation.
2.1 – Talkgroup Tx voice call	Use ZoneWatch grid to verify talkgroup call is active from the radio under test. Transmit test voice traffic and verify it is received by a console and another subscriber radio.
2.2 – Talkgroup Rx voice call	Transmit test voice traffic on another subscriber radio and use ZoneWatch grid to verify talkgroup call is active. Verify voice traffic is received by the radio under test.
2.3 – Talkgroup Rx voice call, late entry	Start with radio under test powered down. Transmit test voice traffic on another subscriber radio and use ZoneWatch grid to verify talkgroup call is active. Power on the radio under test. Verify radio under test joins the voice call and receives voice traffic.
2.4 – Talkgroup call, invalid radio	Program radio under test with invalid individual ID 999999/0xF423F. Press PTT on radio under test and use ZoneWatch grid to verify that no talkgroup call is active. Verify no voice traffic on that talk group is heard on a console and a subscriber radio.
2.5 – Talkgroup call, request queued	Use ZoneWatch grid to verify that the talkgroup call request from radio under test is placed in the busy queue. Verify that the radio sounds an audible indication to the user to indicate that the call request has been queued. Once the call request is released from the busy queue, verify that the radio under test alerts the user that he/she may talk and that voice traffic is heard on a console or another radio.
2.6 – Talkgroup call, site trunking	While the site that the radio under test is affiliated with is in site trunking (not involved in wide area calls) transmit test voice traffic from the radio under test and verify it is received by another subscriber radio on the same site.
3.1 – Multigroup (ATG) Tx voice call	Radio under test places a call on the multigroup, DEMO ATG. Verify that a subscriber radio monitoring a talkgroup in the multigroup, such as DEMO 3, participates in the call. Use ZoneWatch grid to verify that there is no message 3runking hang time.
3.2 – Multigroup (ATG) Rx voice call	Another subscriber radio places a call on the multigroup, DEMO ATG. Verify that the radio under test participates in the multigroup call when selected on one of the talkgroups in the multigroup, such as DEMO 3.
4.1 – Radio permitted to affiliate to new talkgroup	Use Affiliation Display: Radio Viewer to verify new talkgroup affiliation from radio under test. Verify radio under test no longer hears previous talkgroup audio and hears new talkgroup audio.
4.2 – Affiliation, invalid talkgroup	Program the radio under test with invalid talk group 9999/0x270F and use ZoneWatch to verify a talk group call is not placed on the invalid talk group.

4.3 – Radio re-affiliates to approved site from denied site	Use ZoneWatch raw display and/or Affiliation Display: Radio Viewer to verify radio under test moves to approved sites from denied sites.
4.4 – Radio de-affiliates on power down	Use Affiliation Display: Radio Viewer to verify radio under test shows "Deaffiliated" when the radio is powered down.
4.5 – Radio de-affiliates when changed to a conventional channel	Use Affiliation Display: Radio Viewer to verify radio under test shows "Deaffiliated" when the radio is changed to a conventional channel.
5.1 – Emergency alarm	Use Radio Control Manager and a dispatch console to verify the emergency alarm is activated by the radio and received by RCM and the dispatch console.
5.2 – Emergency alarm, revert feature	Program the radio under test to send all emergencies to a specific talk group. Select the radio under test on a different talk group and activate an emergency alarm. Use Radio Control Manager and a dispatch console to verify the emergency alarm is activated by the radio and received by RCM and the dispatch console on the specified talk group for emergencies.
5.3 – Emergency alarm, site trunking	While the site that the radio under test is affiliated with is in site trunking (not involved in wide area calls) transmit an emergency alarm from the radio under test. Use third party software to verify that an emergency alarm is broadcast at the site.
5.4 – Emergency alarm, invalid radio	Program the radio under test with invalid individual ID 999999/0xF423F. Use Radio Control Manager (RCM) and a dispatch console to verify the emergency alarm is not activated by the radio and not received by RCM or the dispatch console.
6.1 – Emergency call	Use ZoneWatch grid to verify the emergency status of the call when the radio under test is in the emergency state after pressing the emergency button. Verify that voice traffic is received by another radio and a dispatch console from the radio under test. Use ZoneWatch grid to verify there is no emergency call placed when another (non-emergency) radio is transmitting after the 30 second emergency call message trunking hang timer expires.
6.2 – Emergency call, revert feature	Program the radio under test to send all emergencies to a specific talk group. Select the radio under test on a different talk group and transmit an emergency call. Use ZoneWatch grid to verify the emergency status of the call and that the emergency call is placed on the specified talk group. Verify that a dispatch console is receiving the call as an emergency call. Verify that voice traffic is received by another radio and a dispatch console from the radio under test.
6.3 – Emergency call, site trunking	While the site that the radio under test is affiliated with is in site trunking (not involved in wide area calls) transmit an emergency call from the radio under test. Use third party software to verify that the call is an emergency call. Verify that voice traffic is received by another radio on the same site as the radio under test.
6.4 – Emergency call, invalid radio	Program the radio under test with invalid individual ID 999999/0xF423F. Verify with ZoneWatch grid and a console

	that an emergency call is not placed.
6.5 – Emergency call request queued	Use ZoneWatch grid to verify that the emergency call went into the busy queue and that the radio under test transmitted an emergency call once the request exited the queue.
6.6 – Clear emergency, subsequent calls are not emergency	Use ZoneWatch grid to verify that, after clearing the emergency on the radio under test, subsequent calls from that radio are not emergency calls.
6.7 – Clear emergency, subsequent calls are not emergency, site trunking	While the site that the radio under test is affiliated with is in site trunking (not involved in wide area calls), use third party software to verify that, after clearing the emergency on the radio under test, subsequent calls from that radio are not emergency calls.
7.1 – Encrypted Call Tx *(not mandatory for acceptance)*	Program radio under test and a radio from another vendor with a common encryption key using a common encryption algorithm. Verify that the radio from another vendor hears audio from the radio under test. Document what common encryption algorithm is tested: _____.
7.2 – Encrypted Call Rx *(not mandatory for acceptance)*	Program radio under test and a radio from another vendor with a common encryption key using a common encryption algorithm. Verify that the radio under test hears audio from the other vendor's radio. Document what common encryption algorithm is tested: _____.
7.3 – Call privacy for encrypted call	Program the radio under test with the NE MAINT talk group in an unencrypted mode. Verify that the radio under test remains muted when transmitting an encrypted call on NE MAINT from another radio.
8.1 – Idle radio	Use Affiliation Display: Radio Viewer to verify that the radio under test affiliates with one site, then by moving the radio or forcing the radio to change sites, affiliates with another site.
8.2 – Adjacent control channel (ACC) list roaming	Program radio under test with one control channel and user Affiliation Display: Radio Viewer to verify the radio roams to other sites based on the adjacent control channel (ACC) list broadcast from those sites.
9.1 – Radio inhibit	While the radio under test is turned on and affiliated with the system, use Radio Control Manager (RCM) to send a radio inhibit command to the radio. Verify that radio under test is no longer able to transmit calls on the system.
9.2 – Radio cancel inhibit	While the radio under test is turned on and affiliated with the system in the inhibited mode, use Radio Control Manager (RCM) to send a radio cancel inhibit command to the radio. Verify that the radio under test becomes able to transmit calls on the system.
9.3 – Radio inhibit (passive)	While the radio under test is turned off and deaffiliated with the system, use Radio Control Manager (RCM) to send a radio inhibit command to the radio. Verify that radio under test is no longer able to transmit calls on the system once it is turned on.
9.4 – Radio cancel inhibit (passive)	While the radio under test is turned off and deaffiliated with the system in the inhibited mode, use Radio Control Manager (RCM) to send a radio cancel inhibit command to the radio. Verify that the radio under test becomes able to transmit calls on the

	system once it is turned on.
9.5 – Radio check *(not mandatory for acceptance)*	While radio under test is turned on and affiliated with the system, use Radio Control Manager (RCM) to send a radio check command to the radio. Verify that the radio check screen becomes populated with the site and talkgroup that the radio is affiliated on/with.
10.1 – Rx of talkgroup involved in a patch	With the scanning function turned off, select DEMO 4 on the radio under test. Patch the DEMO 4 talk group to the SERVICE talkgroup on a console and transmit on SERVICE using another radio. Verify that the radio under test is receiving the audio.
10.2 – Rx of talkgroup involved in a multiselect	With the scanning function turned off, select DEMO 4 on the radio under test. Add the DEMO 4 talk group and the SERVICE talkgroup to a multiselect on a console and transmit on the multiselect from the console. Verify that the radio under test is receiving the audio.
10.3 – Tx on a talkgroup involved in a patch	Patch the DEMO 4 talk group to the SERVICE talk group on a console and transmit on DEMO 4 using the radio under test. Verify that another radio selected on SERVICE is receiving the audio.
10.4 – Rx of a scanned talkgroup involved in a patch	Program the radio under test's scan list to scan the DEMO 4 talk group and then select the SERVICE talk group on the radio's channel selector knob. Patch DEMO 4 to ENGINEERING on a console and activate the scan function on the radio under test. Key up on ENGINEERING (unencrypted) using another subscriber radio and verify that the radio under test is receiving the audio on DEMO 4 while scanning.
10.5 – Rx of a scanned talkgroup involved in a multiselect	Program the radio under test's scan list to scan the DEMO 4 talk group and then select the SERVICE talk group on the radio's channel selector knob. Add DEMO 4 and ENGINEERING to a multiselect on a console and activate the scan function on the radio under test. Key up on the multiselect from the console and verify that the radio under test is receiving the audio on DEMO 4 while scanning.
11.1 – 700 MHz / 800 MHz operation, 800 MHz only site, Tx voice call	Place radio under test on a site that uses 800 MHz for control and all voice channels. Use ZoneWatch grid to verify talkgroup call is active from the radio under test. Transmit test voice traffic and verify it is received by a console and another subscriber radio.
11.2 – 700 MHz / 800 MHz operation, 800 MHz only site, Rx voice call	Place the radio under test on a site that uses 800 MHz for control and all voice channels. Transmit test voice traffic on another subscriber radio and use ZoneWatch grid to verify talkgroup call is active. Verify voice traffic is received by the radio under test.
11.3 – 700 MHz / 800 MHz operation, 700 MHz only site, Tx voice call	Place radio under test on a site that uses 700 MHz for control and all voice channels. Use ZoneWatch grid to verify talkgroup call is active from the radio under test. Transmit test voice traffic and verify it is received by a console and another subscriber radio.
11.4 – 700 MHz / 800 MHz	Place the radio under test on a site that uses 700 MHz for

operation, 700 MHz only site, Rx voice call	control and all voice channels. Transmit test voice traffic on another subscriber radio and use ZoneWatch grid to verify talkgroup call is active. Verify voice traffic is received by the radio under test.
11.5 – 700 MHz / 800 MHz operation, mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Tx 800 MHz voice call.	Place radio under test on a site that uses 800 MHz for control and has 800 MHz and 700 MHz voice channels. Select a talk group on the radio under test that will only use 800 MHz voice channels and transmit a voice call. Use ZoneWatch grid to verify talkgroup call is active from the radio under test on an 800 MHz voice channel. Verify that the voice call is received by a console and another subscriber radio.
11.6 – 700 MHz / 800 MHz operation, mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Rx 800 MHz voice call.	Place radio under test on a site that uses 800 MHz for control and has 800 MHz and 700 MHz voice channels. Select a talk group on the radio under test that will only use 800 MHz voice channels. Transmit a voice call from another radio on that talk group. Use ZoneWatch grid to verify talkgroup call is active from the radio under test on an 800 MHz voice channel. Verify that the voice call is received by the radio under test.
11.7 – 700 MHz / 800 MHz operation, mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Tx 700 MHz voice call.	Place radio under test on a site that uses 800 MHz for control and has 800 MHz and 700 MHz voice channels. Select a talk group on the radio under test that is enabled to use 700 MHz voice channels and transmit a voice call. Use ZoneWatch grid to verify talkgroup call is active from the radio under test on an 700 MHz voice channel. Verify that the voice call is received by a console and another subscriber radio.
11.8 – 700 MHz / 800 MHz operation, mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Rx 700 MHz voice call.	Place radio under test on a site that uses 800 MHz for control and has 800 MHz and 700 MHz voice channels. Select a talk group on the radio under test that is enabled to use 700 MHz voice channels. Transmit a voice call from another radio on that talk group. Use ZoneWatch grid to verify talkgroup call is active from the radio under test on an 700 MHz voice channel. Verify that the voice call is received by the radio under test.
12.1 – Call alert (radio page) functionality *(not mandatory for acceptance)*	If necessary, program the radio under test to enable receiving call alerts (radio page). Use a console or another subscriber radio to send a call alert to the radio under test. Verify that the radio under test sounds audible tones and/or sends visual indications that the call alert has been received.
12.2 – Transmitter time out timer	Enable or program the radio under test with a transmit time out timer. Transmit a voice call for a length of time exceeding the time out timer and use the ZoneWatch grid, a console or another subscriber radio to verify that the radio under test has inhibited itself from transmitting.
12.3 – Site trunking, avoidance	Program the radio under test to avoid sites that are in site trunking (not involved in wide area calls). Place the site that the radio under test is affiliated with in site trunking. Use ZoneWatch: Affiliation Display to verify the radio under test moves and affiliates to a site that is not in site trunking.
12.4 – Site trunking, site preference	Program the radio under test with the highest site preference level available for the site that will be put into site trunking (not

	involved in wide area calls). Use third party software to verify that the radio under test remains on the highest preference site while it is in site trunking.
Note: Unit-to-Unit Calls	Unit-to-unit calls are not used on the system due to the amount of channel resources those calls occupy. Therefore, tests of unit-to-unit call functions will not be performed.
Note: PSTN / Telephone Interconnect Calls	PSTN/telephone interconnect calls are not used on the system. Therefore, tests of PSTN/telephone interconnect call functions will not be performed.

Table 8

Cobb Regional Radio System Subscriber Acceptance Test Plan – Test Results										
Test Case	**Description**	**Test Case Verdict**								
1	*Unit Registration*									
1.1	Valid registration									
1.2	Registration, invalid radio									
2	*Group Voice Call*									
2.1	Talkgroup Tx voice call									
2.2	Talkgroup Rx voice call									
2.3	Talkgroup Rx voice call, late entry									
2.4	Talkgroup call, invalid radio									
2.5	Talkgroup call, request queued									
2.6	Talkgroup call, site trunking									
3	*Multigroup (ATG) Voice Call*									
3.1	Multigroup (ATG) Tx voice call									
3.2	Multigroup (ATG) Rx voice call									
4	*Affiliation*									
4.1	Radio permitted to affiliate to new group									
4.2	Affiliation, invalid group									
4.3	Radio re-affiliates to approved site from denied site									
4.4	Radio de-affiliates on power down									
4.5	Radio de-affiliates when changed to a conventional channel									
5	*Emergency Alarm*									
5.1	Emergency alarm									
5.2	Emergency alarm, revert feature									

Test Case	Description					Test Case Verdict					
	Cobb Regional Radio System **Subscriber Acceptance Test Plan – Test Results**										
5.3	Emergency alarm, site trunking										
5.4	Emergency alarm, invalid radio										
6	***Emergency Group Call***										
6.1	Emergency call										
6.2	Emergency call, revert feature										
6.3	Emergency call, site trunking										
6.4	Emergency call, invalid radio										
6.5	Emergency call request queued										
6.6	Clear emergency, subsequent calls are not emergency										
6.7	Clear emergency, subsequent calls are not emergency, site trunking										
7	***Encrypted Calls***										
7.1	Voice call Tx using common algorithm and key across manufacturers *(not mandatory for acceptance)*										
7.2	Voice call Rx using common algorithm and key across manufacturers *(not mandatory for acceptance)*										
7.3	Call privacy for encrypted call										
8	***Intra-Location Registration Area Roaming***										
8.1	Idle radio										
8.2	Adjacent control channel (ACC) list roaming										
9	***Radio Commands***										
9.1	Radio inhibit (radio affiliated with system)										
9.2	Radio cancel inhibit (radio affiliated with system)										
9.3	Radio inhibit (radio turned off, then turned on)										

Cobb Regional Radio System Subscriber Acceptance Test Plan – Test Results											
Test Case	**Description**		**Test Case Verdict**								
9.4	Radio cancel inhibit (radio turned off, then turned on)										
9.5	Radio check *(not mandatory for acceptance)*										
10	***Supergroup Calls (Patch, Multiselect)***										
10.1	Rx of talk group involved in a patch										
10.2	Rx of talk group involved in a multiselect										
10.3	Tx on a talk group involved in a patch										
10.4	Rx of a scanned talk group involved in a patch										
10.5	Rx of a scanned talk group involved in a multiselect										
11	***700 MHz / 800 MHz Operation***										
11.1	800 MHz only site, Tx voice call										
11.2	800 MHz only site, Rx voice call										
11.3	700 MHz only site, Tx voice call *(if radio is equipped with 700 MHz)*										
11.4	700 MHz only site, Rx voice call *(if radio is equipped with 700 MHz)*										
11.5	Mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Tx 800 MHz voice call.										
11.6	Mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Rx 800 MHz voice call.										
11.7	Mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Tx 700 MHz voice call. *(if radio is equipped with 700 MHz)*										
11.8	Mixed site with 800 MHz control channel, 800 MHz voice channels and 700 MHz voice channels, Rx 700 MHz voice call. *(if radio is equipped with 700 MHz)*										
12	***Miscellaneous***										

Cobb Regional Radio System Subscriber Acceptance Test Plan – Test Results											
Test Case	**Description**	**Test Case Verdict**									
12.1	Call alert (radio page) functionality *(not mandatory for acceptance)*										
12.2	Transmitter time-out timer										
12.3	Site trunking, avoidance										
12.4	Site trunking, site preference										

Table 9

Cobb Regional Trunked Radio System

Subscriber Acceptance Test Plan – Test Results

Test Notes/Comments:

If a manufacturer's subscriber radio requires the use of a software or hardware key in order to program the DTR system into it, the distribution of this key shall go through the Cobb Regional Radio System approval process prior to distribution. See Cobb County Radio System Security Policy for instructions.

A recommendation for approval of a radio for use on the Cobb Regional Trunked Radio System only guarantees that the radio performs the basic operations in the test plan and does not ensure that all features or functions of each vendor's radios will operate identically.

_____ Recommend to **APPROVE** radio for use on the Cobb Regional Trunked Radio System.

_____ Recommend to **DENY** radio for use on the Cobb Regional Trunked Radio System.

_____ Recommend to **APPROVE** radio for use on the Cobb Regional Trunked Radio System.**WITH THE**

FOLLOWING CONDITIONS: _____

_____

_____

_____.