

APPENDIX E



**South Bay Regional Public
Communication Authority**
SMS Text-to-9-1-1 via Web Interface
Test Results

March 6, 2014

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Test Cases

- 1) Verify PSAP procedures in place when non-test SMS 9-1-1 text is delivered
- 2) Verify test 9-1-1 SMS text is delivered to correct PSAP and rebid capability
- 3) Verify 2 simultaneous SMS 9-1-1 text can be handled by one call taker
- 4) Verify bounce back message delivered when third 9-1-1 SMS text is sent
- 5) Verify text conversation is still up if cell phone is powered down and powered up
- 6) Verify 9-1-1 SMS texter receives a bounce back when added to deny list
- 7) Verify 9-1-1 SMS texter receives a bounce back when PSAP has provisioned a Time of Day
- 8) Verify ability for second call taker to take over SMS text session
- 9) Verify bounce back is received when both trunks are busy
- 10) Verify transfer capability from South Bay Regional to another PSAP
- 11) Verify results when texter send more than 160 characters
- 12) Verify SMS text to 9-1-1 sessions are being recorded in ECaTS

CASE #1	Non test Text is sent to South Bay Regional
Objective/Description	This test verifies that when South Bay Regional receives a non-test text they will manually send canned bounce back response Text (when service is not available)
Resources	Texter in field and centroid within South Bay Regional’s jurisdiction. Call taker to receive text TCS to monitor text session
Test Setup	<ol style="list-style-type: none"> 1. Verify Texter is ready 2. Send test SMS 9-1-1 Text to verify bounce back (from Verizon Wireless) 3. Verify TCC is provisioned and ready 4. Verify the target PSAP is available. 5. Verizon Wireless/TCS turn on 9-1-1 texting for South Bay Regional
Procedure	<ol style="list-style-type: none"> 1. Text message “I have a flat tire” 2. Call taker should recognized this is not part of our testing (because the text does not start with this “is a test”) and reply back with the canned bounce back message (should be same message they would see from Verizon Wireless) 3. PSAP to end text session.
Verification	<ol style="list-style-type: none"> 1. Verify bounce back received from Verizon Wireless on initial test 2. Once service is activated verify canned bounce back is sent by PSAP. 3. Verify release text received by Texter.
Text time	Send to receive:
Notes	<p>Test text from several phones with Verizon Wireless service received bounce back messages after GEM9-1-1 was activated by SBRPCA and TCS.</p> <p>TCS texting capable jurisdiction designated for El Segundo area Texters had to move to El Segundo in order to be able to send texts and have them received at SBRPCA successfully.</p> <p>Test text from 949-677-XXXX at 14:07 Received at SBRPCA in GEM, received “test test test” from texter SBRPCA replied with “Please call 9-1-1 this service is not available” as a canned message in GEM Texter received canned message Rebid requested by SBRPCA Location agent working on phone Updated location received: 33.91729, -118.41839, uncertainty 21 meters End session initiated by SBRPCA</p>
Analysis	<p>TCS activated service for only the El Segundo area, not for SBRPCA’s entire jurisdiction. In doing this, texts were able to be successfully sent to the PSAP from within the area of El Segundo while all other areas within SBRPCA’s jurisdiction received the automatic bounce back when texting to 9-1-1. The canned manual bounce back was successfully sent and received by the texter.</p>

CASE #2	Texter send 9-1-1 SMS text and routes to South Bay Regional
Objective/Description	This test verifies Text can be delivered to South Bay Regional and rebid for location is functioning.
Resources	Texter in field and centroid within South Bay Regional's jurisdiction. Verizon cell phone with location agent activated Call taker to receive text TCS to monitor text session
Test Setup	1. Verify Texter is ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available.
Procedure	1. Send a SMS text (starts with this is a test) to 911 to initiate a dialog. 2. Respond to the incoming RFA at the PSAP and send a few messages back and forth between the PSAP and texter. 3. After 20 seconds rebid for location. 4. PSAP ends text session.
Verification	1. Verify the RFA is received by the PSAP configured for this test case. 2. Verify the transcript is received by the PSAP when the dialog connected, and location information is properly displayed and call back number displayed. 3. Verify all messages sent by the PSAP are sent to the mobile handset. 4. Verify all messages sent by the mobile are received by the PSAP. 5. verify lat/long changes from centroid to actual location of texter 6. Verify release text received by Texter.
Text time	Send to receive:
Notes	Was location populated in CAD? This test was verified through Case #1 and Case #4 See those cases for results
Analysis	Text was delivered to SBRPCA when texter sent from cell sectors with centroids within the El Segundo jurisdictional area of S BRPCA. The rebid function allows for updated precise location when using a Verizon phone with location agent.

CASE #3	Two simultaneous SMS Text 911 from different users, Routed to South Bay Regional
Objective/Description	This test verifies that TCC can process the scenario of initiating two dialogs from different texters with the delivery of the messages to South Bay Regional .
Resources	2 SMS Texters 1 9-1-1 Call Taker 2 timers
Test Setup	1. Two mobile phones activated and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available.
Procedure	1. Initiate two dialogs by sending a SMS to 911 from two different mobile handsets simultaneously. 2. Respond to the two incoming RFAs at the PSAP and send a few messages back and forth between the PSAP and texter. 3. PSAP ends text session.
Verification	1. Verify that both RFAs are received by the PSAP configured for this test case. 2. Verify the transcript for each dialog is received by the PSAP 3. Verify all messages sent by the PSAP are sent to the texter. 4. Verify all messages sent by the texter are received by the PSAP.
Text time	Text session 1 send to receive: Text session 2 send to receive:
Notes	Test text from 949-677-XXXX at 09:48:36 and 213-422-XXXX at 14:10:50 Both text sessions received at SBRPCA 949-677-XXXX received first in GEM at SBRPCA 213-422-XXXX received second in GEM at SBRPCA SBRPCA is able to text back and forth with texters, toggling between each session 949-677-XXXX initial location was 33.91732, -118.41072, uncertainty 1239 meters Rebid for location on 949-677-XXXX text session performed Updated location received: 33.91819, -118.41859, uncertainty 28 meters 213-422-XXXX initial location was 33.91732, -118.41072, uncertainty 1239 meters Rebid for location on 213-422-XXXX text session was performed Location remained the same, no location agent available on phone to offer precise location End session initiated by SBRPCA on both open text sessions
Analysis	SBRPCA is able to process two separate text sessions/dialogues with all messages sent being received by a single call taker in separate sessions at SBRPCA. SBRPCA is able to rebid for updated location on both text sessions. Only the Verizon Wireless phone with location agent active is able to allow for the provision of precise location information.

CASE #4	Three simultaneous SMS Text to 911 from different texters, TCS TCC receives and provides routing instruction, 2 text Route to South Bay Regional, 1 text receives a Bounce Back Message
Objective/Description	This test verifies that TCC can process the scenario of initiating two dialogs from different texters with the delivery of the messages to South Bay Regional, and the third texter should receive a bounce back message. South Bay Regional provisioned with session limit of 2.
Resources	3 SMS Texters 2 9-1-1 Call Taker
Test Setup	1. Three Verizon Wireless mobile phones 2. Verify TCC is provisioned and ready with session limit of 2 3. Verify the target PSAP is available.
Procedure	1. Initiate three dialogs by sending a SMS to 911 from three different mobile handsets simultaneously. 2. Respond to the two incoming RFAs at the PSAP and send a few messages back and forth between the PSAP and mobile handsets. 3. PSAP ends Text session.
Verification	1. Verify that both RFAs are received by the PSAP configured for this test case. 2. Verify the transcript for each dialog is received by the PSAP. 3. Verify all messages sent by the PSAP are sent to the texter. 4. Verify all messages sent by the texter are received by the PSAP. 5. Verify third texter received a bounce back message
Text time	Send to receive:
Notes	This test was not performed.

CASE #5	Text Conversation when device powered down powered back up
Objective/Description	This test verifies the text conversation continues even if the mobile phone is powered down and turned back on within 5 minutes.
Resources	Texter in field and centroid within South Bay Regional's jurisdiction 9-1-1 Call taker Timer
Test Setup	1. Mobile phone activated and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available.
Procedure	1. Send SMS to 911 to initiate a dialog 2. Respond to the incoming RFA at the PSAP and send a few messages back and forth between the PSAP and mobile 3. Texter powers down mobile phone. 4. PSAP to send another text while phone is powered down. 5. Texter powers on phone after waiting 5 minutes 6. PSAP verifies original SMS conversation is up. 7. Texter sends SMS to continue same text session 8. Respond to the incoming RFA at the PSAP and send a few messages back and forth between the PSAP and texter. 9. PSAP ends text session
Verification	1. PSAP and texter verifies status of SMS conversation was continuous, verify no automatic message was delivered by PSAP or TCS because of time between text messages.
Text time	Send to receive:
Notes	Test text from 949-677-XXXX at 14:19:13 Received at SBRPCA Texter and call taker able to exchange messages Texter powers phone off SBRPCA sends three separate messages while phone is powered off Texter powers phone back on again Texter receives all three messages sent by SBRPCA while phone was powered down Texter and call taker able to once again exchange messages End session initiated by SBRPCA
Analysis	A PSAP is able to continue the text conversation if a texter powers their phone off and on during a text session. Texter is able to receive messages sent by the call taker while the phone is powered down once the phone is once again powered on.

CASE #6	Add number to Deny List
Objective/ Description	This test verifies when a number is added to the deny list they will receive a bounce back message
Resources	SMS 9-1-1 texter from 916-207-XXXX 9-1-1 Call taker
Test Setup	<ol style="list-style-type: none"> 1. One mobile phone activated and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available. 4. Log into the GEM911 Admin tool
Procedure	<ol style="list-style-type: none"> 1. Texter 916-207-XXXX to send text to PSAP 2. PSAP sends text back to texter and ends session 3. Add 916-207-XXXX to the deny list 4. Initiate an SMS 9-1-1 text from 916-207-XXXX
Verification	<ol style="list-style-type: none"> 1. Verify first text from 916-207-XXXX was received by PSAP 2. Verify that 9-1-1 SMS texter receives a bounce back message after 916-207-XXXX is added to the deny list.
Text time	Send to receive:
Notes	<p>949-677-XXXX was added to the deny list for the period of 01/01/2009 to 01/01/2019. Test text sent from 949-677-XXXX at 14:35:55 Bounce back received by texter after 1-2 minutes of delay 949-677-XXXX was removed from the deny list Test text sent from 949-677-XXXX at 14:38:04 "Test text sent" Test text again from 949-677-XXXX at 14:40:10 "This is test 24" Received at SBRPCA and replied "Got it" SBRPCA again received :This is test 24" but it was not sent twice from the texter Reply from texter "This is a test 25" sent and received at SBRPCA End session was not initiated, continuing with session for CASE #7</p>
Analysis	<p>A bounce back message is received when a number is added to the deny list and a text message is sent to 9-1-1 while that number is active on the deny list.</p> <p>Delay was seen when texter was waiting to receive the bounce back message. Delay was also seen in the receipt of text messages at SBRPCA sent by the texter. May be an issue with the handset or within the wireless network.</p>

CASE #7	Time of Day Setting
Objective/Description	This test verifies when a time of day rule is added to the PSAP PRF subscriber will receive a bounce back message
Resources	SMS 9-1-1 texter from 916-207-XXXX 9-1-1 Call taker
Test Setup	1. One mobile phone activated and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available.
Procedure	1. Setup PSAP for Time of Day Rule through the GEM9-1-1 Admin Tool - close PSAP for Monday , 1/6/14 from current time until midnight. 2. Initiate an SMS 9-1-1 text
Verification	1. Verify that 9-1-1 SMS texter receives a bounce back message
Text time	Send to receive:
Notes	<p>Continuing with same session from CASE #6 with 949-677-XXXX Texter sent "This is text 26" at 14:42 This was received twice by SBRPCA at 14:44:40 Texter continues to send texts to 9-1-1 and they continue to be delayed in receipt at the PSAP Texter sent "Hello hello" and "Did you get it" at 14:43 Texter sent "Another text I'm concerned" at 14:44 SBRPCA sent "Something back" at 14:45:40 This was received by the texter at 14:45:50 SBRPCA then receives all texts from texter</p> <p>Test text sent from 213-422-XXXX at 14:49:40 "Did you get this" Received at SBRPCA at 14:49:59 Texter sent "What's for dinner?" at 14:50:39 Received immediately following at SBRPCA</p> <p>Continuing session with 949-677-XXXX with message sent from texter at 14:53:02 Received at SBRPCA at 14:55:02 PSAP received message twice but texter only sent the message once</p> <p>Both sessions are left open and time of day rule is set to end at 15:01:00 Test text is sent from 213-422-XXXX after time of day rule is set but prior to 15:01:00 Message is received at SBRPCA and texter and call taker are able to exchange messages Time of day rule expires End session initiated by SBRPCA for both sessions</p> <p>TCS stated that a live session will remain active if a time of day rule is set while the session is active. System performed as designed.</p> <p>SBRPCA set another time of day rule Test text sent from 949-677-XXXX and 213-422-XXXX at 15:04:36 213-422-XXXX received bounce back message 949-677-XXXX received a bounce back message after considerable delay Time of day rule was removed by SBRPCA</p>
Analysis	A bounce back message is received when a time of day rule is set and a text message opening a new text session is sent to 9-1-1 while the time of day rule is set.

If a time of day rule is set while there are active text sessions in GEM9-1-1, the active text sessions will remain active and messages will continue to be received at the PSAP and by the texter back and forth during the time that the time of day rule is set. If the session is ended and a text from the same user to the same PSAP is initiated, the texter will receive a bounce back message if the time of day rule is still active.

A PSAP must ensure that all sessions are ended prior to closing the GEM9-1-1 browser or evacuating the PSAP, even if a time of day rule is set.

Delay was seen when the 949-677-XXXX texter was sending messages to the PSAP and waiting for the bounce back message. May be an issue with the handset or within the wireless network.

CASE #8	Verify ability for second call taker to take over SMS text session
Objective/ Description	This test verifies that a second call taker at South Bay Regional can take over a text session from initial call taker
Resources	Texter in field and centroid within South Bay Regional's jurisdiction Call taker to receive text Second call taker available to take over text TCS to monitor text session
Test Setup	1. Verify Texter is ready 2. Verify the target PSAP is available.
Procedure	1. Send SMSText message to 9-1-1 2. South Bay Regional to reply to Texter 3. Exchange a few texts 4. Have second call taker at South Bay Regional take over text session from another call taker position 5. Have second call taker exchange a few texts 6. Have South Bay Regional end text session
Verification	1. Verify text was received by first call taker 2. Verify second call taker is able to takeover text session 3. Verify second call taker can see the entire text session 3. Verify release message received by Texter.
Text time	Send to receive:
Notes	How is this accomplished at the PSAP? Document exact words sent and received This test was not performed.

CASE #9	Verify bounce back message received when both trunks are out of service
Objective/Description	This test verifies SMS texter will receive a bounce back message if both trunks are out of service (South Bay Regional text limit is set at two)
Resources	Texter in field and centroid within South Bay Regional's jurisdiction. Call taker to receive text TCS to monitor text session Verizon translation team
Test Setup	1. Verify Texter is ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available 4. Verify Verizon translation team ready
Procedure	1. Verizon translation team to take both trunks out of service 2. Texter places SMS text to 9-1-1
Verification	1. Verify the bounce back message is received by the texter
Text time	Send to receive:
Notes	This test was not performed. GEM9-1-1 does not utilize 9-1-1 trunks. The ability for a third texter to receive a bounce back message if SBRPCA already had two live text sessions (CASE #4) was also not tested as the testers did not have three Verizon Wireless phones available for use in the El Segundo area during the time of testing.

CASE #10	Verify transfer capability from South Bay Regional to CSU Long Beach PD
Objective/Description	This test will determine if a texter can be transferred from South Bay Regional to CSU Long Beach PD
Resources	Texter in field and centroid within South Bay Regional jurisdiction. 2 mobile phones (one with location agent and one without) Call taker at South Bay Regional to receive text Call taker at CSU Long Beach to receive text TCS to monitor text session Timer to time send receive time
Test Setup	1. Mobile phones (one with Location Agent active) and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAPs are available.
Procedure	1. Send an SMS text to 9-1-1 to initiate a text session at South Bay Regional . 2. PSAP sends response to initial text – and exchange a few texts. 3. Texter travels to CSU Long Beach PD’s jurisdiction 4. South Bay Regional rebids for location once texter is in CSU Long Beach PD jurisdiction to activate transfer button 5. South Bay Regional uses transfer button to transfer text to CSU Long Beach PD 6. Texter sends another text 7. That text should arrive at CSU Long Beach PD 8. CSU Long Beach PD replies to text (they exchange a few text) 9. CSU Long Beach PD ends text session.
Verification	1. Verify the initial SMS text was received by South Bay Regional 2. Verify transfer button activates and transfer took place 3. Verify the transcript is received by both PSAPs 4. Verify texter received all messages and verify PSAPs received all messages
Text time	Send to receive:
Notes	Test text from 949-677-XXXX Received at SBRPCA Texter and call taker exchange messages back and forth Rebid is performed and location is updated to 33.91940, -118.40804, uncertainty 28 meters Session is left open at SBRPCA Texter drives with phone to CSU Long Beach PD jurisdiction SBRPCA initiates a rebid for updated location once the texter is CSU Long Beach PD jurisdiction SBRPCA received a timeout on rebid request SBRPCA initiates another rebid for updated location Location is updated to reflect texter in CSU Long Beach PD jurisdiction and transfer button becomes active on SBRPCA GEM screen SBRPCA transfers caller to CSU Long Beach PD CSU Long Beach PD receives transferred call with full call history and is able to text back and forth with texter End session initiated by CSU Long Beach PD
Analysis	SBRPCA is able to transfer a text session to CSU Long Beach PD once the texter has moved into the CSU Long Beach PD jurisdiction with a session live at SBRPCA. The transferred session is received in GEM at CSU Long Beach PD with full text history.

CASE #11	Verify results when texter sends more than 160 characters
Objective/Description	This test will indicate the results when a text is sent with over 160 characters
Resources	Texter in field and centroid within South Bay Regional's jurisdiction. Call taker to receive text TCS to monitor text session Timer to time send receive time
Test Setup	1. Mobile phone activated and ready 2. Verify TCC is provisioned and ready 3. Verify the target PSAP is available.
Procedure	1. Send the following text message: Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battle-field of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this. Which totals 380 characters. 2. PSAP sends response to initial text. 3. Texter sends text containing following symbols embedded in the text: @ # % & 4. South Bay Regional call taker ends text session 5. If screen shot is available please ask call taker to print the screen
Verification	1. Verify the initial SMS text was received by the PSAP 2. Verify the transcript is received by the PSAP 3. Verify texter received the disconnect session text from PSAP
Text time	Send to receive:
Notes	Test text from 949-677-XXXX at 14:26:00 Texter sent long test text message containing 372 characters Received at SBRPCA after a long delay The 372 character message was received as one text string without breaks and without separate messages at the PSAP Texter sent five messages one right after the other Messages were received at SBRPCA in the correct order as sent by the texter End session initiated by SBRPCA
Analysis	A text greater than 160 characters is received as one single text at the PSAP within the GEM application.

CASE #12	Verify text session are available in ECaTS
Objective/ Description	This test will determine if a PSAP using Standard TTY test sessions appear in ECaTS
Resources	ECaTS
Test Setup	None
Procedure	1. Log into ECaTS pu11 RAW data for 1-6-2013 for Arcadia Police Department
Verification	1. Verify SMS 9-1-1 Text to 9-1-1 was recorded 2. Verify the transcript is received by the PSAP when the dialog connected
Text time	Send to receive:
Notes	NOT AVAILABLE GEM9-1-1 sessions are not currently available within ECaTS.