

User Manual for

Frontline

FRVS Bluetooth®

RF Test System

Document Reference

Issue 2.6 – 6th April 2022



Teledyne LeCroy Customer Support

Periodically check the Teledyne LeCroy Protocol Solutions web site for software updates and other support related to this product.

Web: : <http://www.fte.com/products/default.aspx>
Email: : Frontline_OnlineSales@Teledyne.com
Support: : Frontline_Techsupport@Teledyne.com

Contents

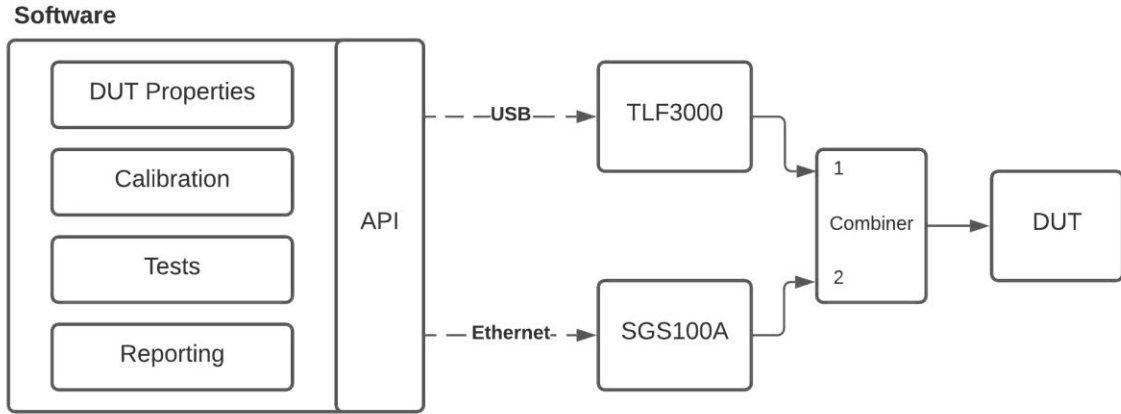
1	SYSTEM.....	4
1.1	SYSTEM LAYOUT	4
1.1.1	<i>Bluetooth Specifications</i>	4
1.1.2	<i>Test Cases</i>	4
1.2	TLF3000	4
1.3	SIGNAL GENERATORS.....	4
2	SOFTWARE OVERVIEW	5
2.1	MENU	5
2.2	TEST LIST	5
2.3	CONFIGURATION.....	5
2.4	LOGGING.....	6
3	TEST SUITE CONFIGURATION	6
3.1	LICENSE KEY.....	6
3.2	SELECTING TEST SUITE	6
4	CONNECT TO TLF3000.....	7
5	DUT CONFIGURATION – BLUETOOTH BR/EDR	7
5.1	CONNECTION	7
5.2	PROPERTIES	7
6	DUT CONFIGURATION – BLUETOOTH LE	8
6.1	CONNECTION	8
6.2	PROPERTIES	8
7	OTHER CONFIGURATIONS.....	9
7.1	SAVING/LOADING DUT CONFIG.....	9
7.2	SAVE	9
7.3	LOAD	9
7.4	ENVIRONMENT.....	9
8	COMPENSATION.....	10
8.1	IN-BAND COMPENSATION.....	10
8.2	CUSTOM CABLE CALIBRATION SETUP	11
8.2.1	<i>Import</i>	11
9	TEST SELECTION	12
10	LOGGING AND RESULT VIEW.....	12
11	TESTING.....	13
11.1	START	13
11.2	ABORT.....	13
11.3	CLEAR RESULTS.....	13
12	REPORTING	14
12.1	OUTPUT	14
12.2	PROJECT FOLDER.....	14

APPENDIX A	SGS100A SET UP	15
APPENDIX B	CALIBRATION GUIDELINES	16

1 System

Frontline FRVS is used for compliance testing of Bluetooth BR/EDR RF and LE RFPHY tests.

1.1 System Layout



1.1.1 Bluetooth Specifications

Core Specification: Specification of the Bluetooth System Core Package Version 5.3.

1.1.2 Test Cases

TCRL Specification: All test cases from Core.TCRL.2021-2 are incorporated. FRVS is a qualified Test System for all Category A tests except for LE AoX tests.

1.2 TLF3000

- Teledyne LeCroy TLF3000
 - CW Signal generator limited to 6GHz, external signal generator required to complete CW blocking tests up to 12.75GHz.



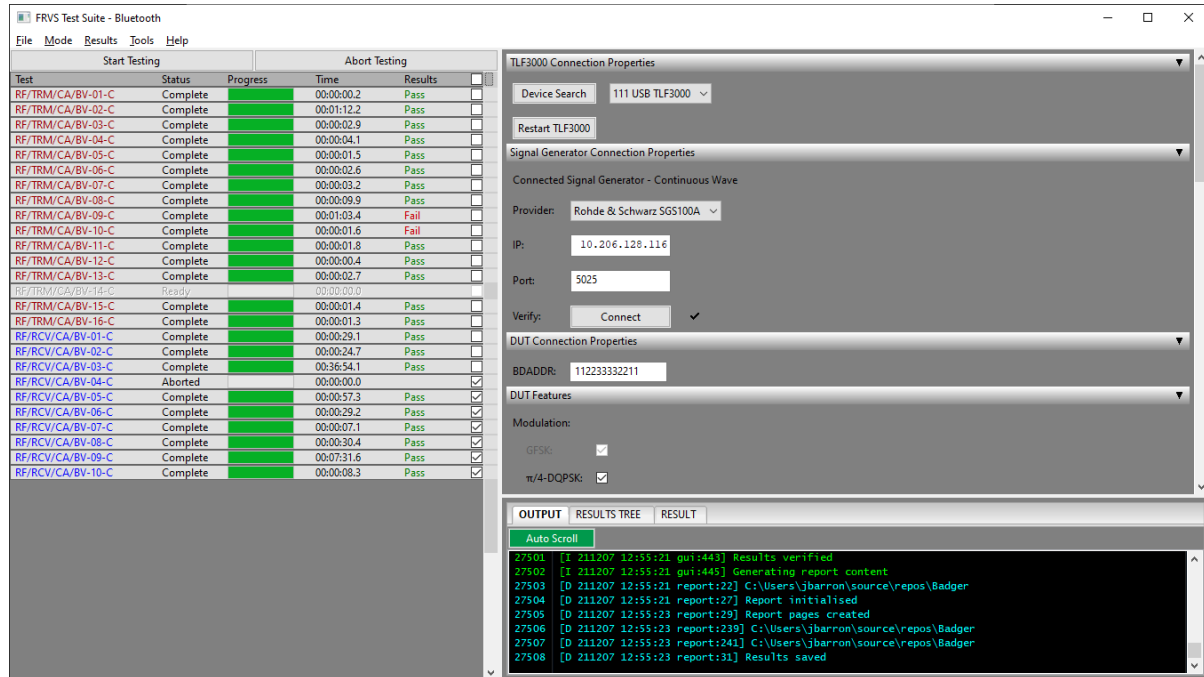
1.3 Signal Generators

External Signal generator required to perform CW blocking Receiver tests:

- Rohde & Schwarz SGS100A

2 Software Overview

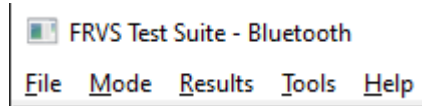
The FRVS software consists of several sections



Start Testing		Abort Testing		
Test	Status	Progress	Time	Results
RF/TRM/CA/BV-01-C	Complete	<div style="width:100%;"></div>	00:00:00.2	Pass
RF/TRM/CA/BV-02-C	Complete	<div style="width:100%;"></div>	00:01:12.2	Pass
RF/TRM/CA/BV-03-C	Complete	<div style="width:100%;"></div>	00:00:02.9	Pass
RF/TRM/CA/BV-04-C	Complete	<div style="width:100%;"></div>	00:00:04.1	Pass
RF/TRM/CA/BV-05-C	Complete	<div style="width:100%;"></div>	00:00:01.5	Pass
RF/TRM/CA/BV-06-C	Complete	<div style="width:100%;"></div>	00:00:02.6	Pass
RF/TRM/CA/BV-07-C	Complete	<div style="width:100%;"></div>	00:00:03.2	Pass
RF/TRM/CA/BV-08-C	Complete	<div style="width:100%;"></div>	00:00:09.9	Pass
RF/TRM/CA/BV-09-C	Complete	<div style="width:100%;"></div>	00:01:03.4	Fail
RF/TRM/CA/BV-10-C	Complete	<div style="width:100%;"></div>	00:00:01.6	Fail
RF/TRM/CA/BV-11-C	Complete	<div style="width:100%;"></div>	00:00:01.8	Pass
RF/TRM/CA/BV-12-C	Complete	<div style="width:100%;"></div>	00:00:00.4	Pass
RF/TRM/CA/BV-13-C	Complete	<div style="width:100%;"></div>	00:00:02.7	Pass
RF/TRM/CA/BV-14-C	Ready	<div style="width:0%;"></div>	00:00:00.0	
RF/TRM/CA/BV-15-C	Complete	<div style="width:100%;"></div>	00:00:01.4	Pass
RF/TRM/CA/BV-16-C	Complete	<div style="width:100%;"></div>	00:00:01.3	Pass
RF/RVCV/CA/BV-01-C	Complete	<div style="width:100%;"></div>	00:00:29.1	Pass
RF/RVCV/CA/BV-02-C	Complete	<div style="width:100%;"></div>	00:00:24.7	Pass
RF/RVCV/CA/BV-03-C	Complete	<div style="width:100%;"></div>	00:36:54.1	Pass
RF/RVCV/CA/BV-04-C	Aborted	<div style="width:0%;"></div>	00:00:00.0	
RF/RVCV/CA/BV-05-C	Complete	<div style="width:100%;"></div>	00:00:57.3	Pass
RF/RVCV/CA/BV-06-C	Complete	<div style="width:100%;"></div>	00:00:29.2	Pass
RF/RVCV/CA/BV-07-C	Complete	<div style="width:100%;"></div>	00:00:07.1	Pass
RF/RVCV/CA/BV-08-C	Complete	<div style="width:100%;"></div>	00:00:30.4	Pass
RF/RVCV/CA/BV-09-C	Complete	<div style="width:100%;"></div>	00:07:31.6	Pass
RF/RVCV/CA/BV-10-C	Complete	<div style="width:100%;"></div>	00:00:08.3	Pass

2.1 Menu

Used for File options, saving the DUT configuration, selecting the Test Suite and accessing the Tools



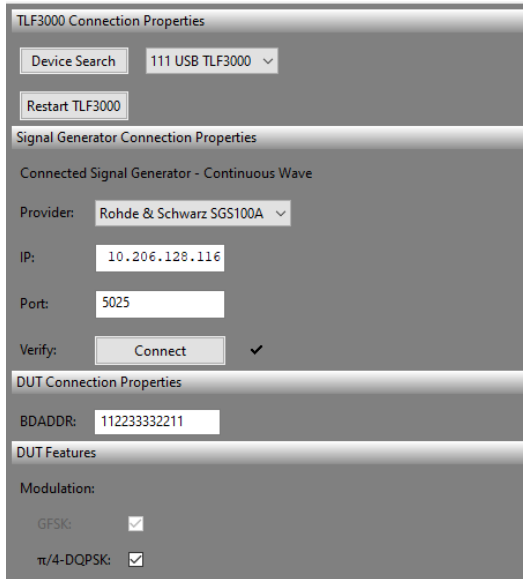
2.2 Test List

A list of possible tests based on the DUT's supported features. Tests can be selected and run and the verdicts and test duration is displayed.

Start Testing		Abort Testing		
Test	Status	Progress	Time	Results
RF/TRM/CA/BV-01-C	Complete	<div style="width:100%;"></div>	00:00:00.2	Pass
RF/TRM/CA/BV-02-C	Complete	<div style="width:100%;"></div>	00:01:12.2	Pass
RF/TRM/CA/BV-03-C	Complete	<div style="width:100%;"></div>	00:00:02.9	Pass
RF/TRM/CA/BV-04-C	Complete	<div style="width:100%;"></div>	00:00:04.1	Pass
RF/TRM/CA/BV-05-C	Complete	<div style="width:100%;"></div>	00:00:01.5	Pass
RF/TRM/CA/BV-06-C	Complete	<div style="width:100%;"></div>	00:00:02.6	Pass
RF/TRM/CA/BV-07-C	Complete	<div style="width:100%;"></div>	00:00:03.2	Pass
RF/TRM/CA/BV-08-C	Complete	<div style="width:100%;"></div>	00:00:09.9	Pass
RF/TRM/CA/BV-09-C	Complete	<div style="width:100%;"></div>	00:01:03.4	Fail
RF/TRM/CA/BV-10-C	Complete	<div style="width:100%;"></div>	00:00:01.6	Fail
RF/TRM/CA/BV-11-C	Complete	<div style="width:100%;"></div>	00:00:01.8	Pass
RF/TRM/CA/BV-12-C	Complete	<div style="width:100%;"></div>	00:00:00.4	Pass
RF/TRM/CA/BV-13-C	Complete	<div style="width:100%;"></div>	00:00:02.7	Pass
RF/TRM/CA/BV-14-C	Ready	<div style="width:0%;"></div>	00:00:00.0	
RF/TRM/CA/BV-15-C	Complete	<div style="width:100%;"></div>	00:00:01.4	Pass
RF/TRM/CA/BV-16-C	Complete	<div style="width:100%;"></div>	00:00:01.3	Pass
RF/RVCV/CA/BV-01-C	Complete	<div style="width:100%;"></div>	00:00:29.1	Pass

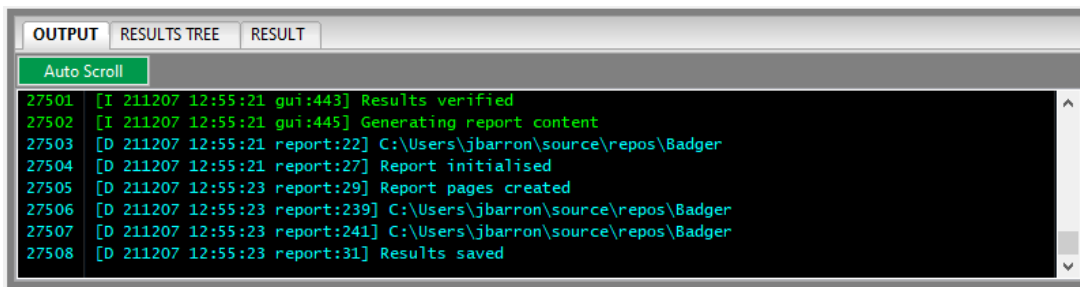
2.3 Configuration

Used to configure the TLF3000, signal generator and the DUT parameters.



2.4 Logging

The FRVS software allows the viewing of logs, a Result Tree to navigate through the results and a Result view to enable a detailed view of each test.



3 Test Suite Configuration

The FRVS can be configured to run tests for Bluetooth BR/EDR and Bluetooth LE.

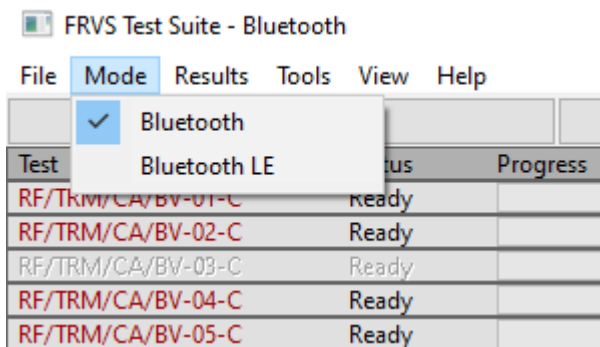
3.1 License Key

The license key is provided on a USB dongle which must be installed on the PC that is running the FRVS software.



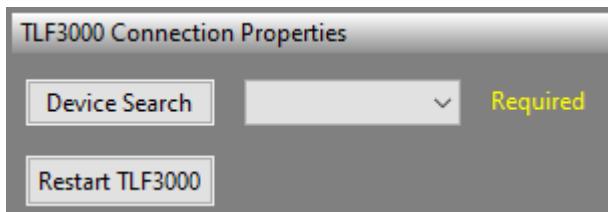
3.2 Selecting Test Suite

From Menu, select Mode then Bluetooth (for BR/EDR) or Bluetooth LE:



4 Connect to TLF3000

As multiple TLF3000 devices may be available, the TLF3000 for the FRVS can be selected from the TLF3000 Connection Properties in the Configuration Panel



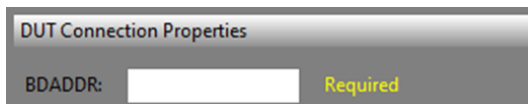
This can be used to Search, Select and Restart the TLF3000.

5 DUT Configuration – Bluetooth BR/EDR

Configuring software for DUT connection and parameters from ICS/IXIT to enable test selection.

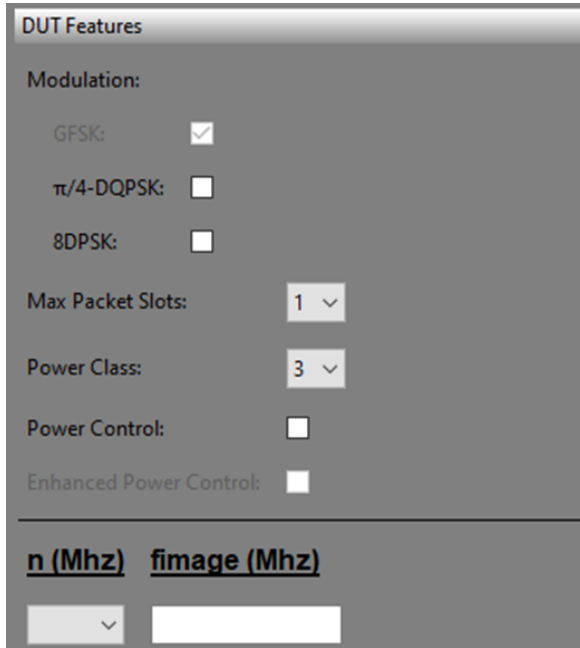
5.1 Connection

For Bluetooth BR/EDR, the connection to the DUT is over the RF interface via LMP commands. The DUT is required to be in Test Mode to accept these commands. The BDADDR must be input here.



5.2 Properties

Enter DUT features (**DUT properties will be verified at the start of each test and if incompatible the test will not run**):



DUT Features

Modulation:

GFSK:

$\pi/4$ -DQPSK:

8DPSK:

Max Packet Slots: 1 ▾

Power Class: 3 ▾

Power Control:

Enhanced Power Control:

n (Mhz) fimage (Mhz)

▾

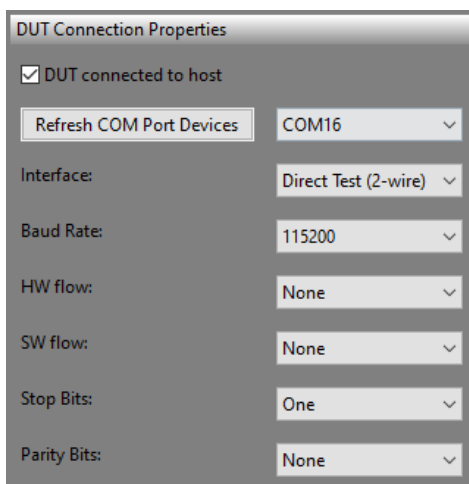
This includes modulation, $\pi/4$ -DQPSK for 2M and 8DPSK for 3M, maximum packet slots, and power control. The n value for intermodulation and image frequency must also be included.

6 DUT Configuration – Bluetooth LE

Configuring software for DUT connection and parameters from ICS/IXIT to enable test selection.

6.1 Connection

Enter connection properties:



DUT Connection Properties

DUT connected to host

Refresh COM Port Devices COM16 ▾

Interface: Direct Test (2-wire) ▾

Baud Rate: 115200 ▾

HW flow: None ▾

SW flow: None ▾

Stop Bits: One ▾

Parity Bits: None ▾

6.2 Properties

Enter DUT features (**DUT properties will be verified at the start of each test and if incompatible the test will not run**):

DUT Features

Role: Central

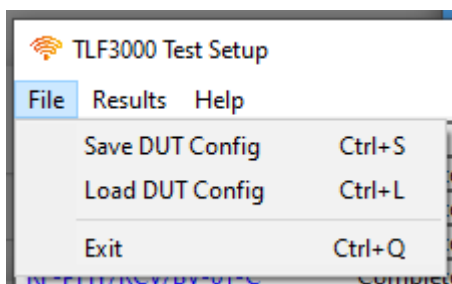
Features	Tx/Rx	
<input checked="" type="checkbox"/> Supports Advertising Extension	Max Supported Adv Octets	<input type="text" value="251"/>
<input checked="" type="checkbox"/> Supports Data Length Extension	Max Supported Rx Octets	<input type="text"/>
<input checked="" type="checkbox"/> Supports 2Mbps	Max Supported Rx Time	<input type="text"/>
<input checked="" type="checkbox"/> Supports LE Coded PHY	Max Supported Tx Octets	<input type="text" value="251"/>
<input type="checkbox"/> Supports Stable Modulation Index	Max Supported Tx Time	<input type="text" value="17040"/>

N fimage

3

7 Other Configurations

7.1 Saving/Loading DUT Config



7.2 Save

Prompts to create file containing entered DUT connection and feature parameters.

7.3 Load

Prompts to select previously saved file containing DUT connection and feature parameters. These will overwrite any values currently in UI.

7.4 Environment

Record environment parameters for reporting – these will be output to PDF report:

Environment Properties

Temperature (°C)

Humidity (%)

Laboratory

Tester

8 Compensation

Test System requires calibration for signal outputs and cable loss between DUT and other components. Note that the compensation requires SMA connectors and that a calibration file may be required for the cable between combiner and DUT if a custom cable is used to connect to DUT (known as Custom Cable Loss).

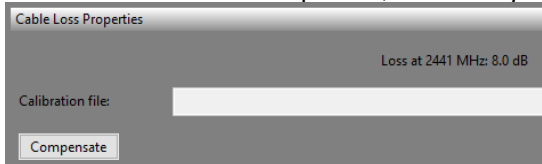
The Compensation consists of 2 parts:

- a) In-band Compensation – RF loss performed by *Test System*
- b) Custom cable loss – allows for custom cables to DUT (must be calibrated by the user and loaded into the *Test System*).

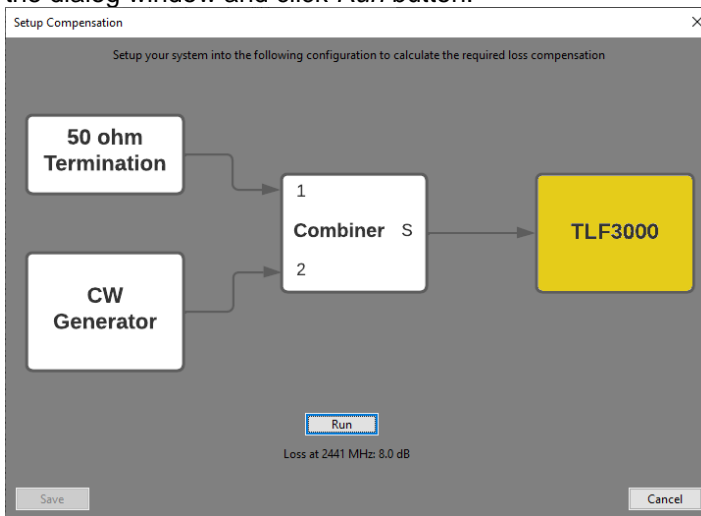
8.1 In-band compensation

The *Test System* provides a means to compensate for the RF path to the DUT.

- a) From the Cable Loss Properties, click *Compensate* button

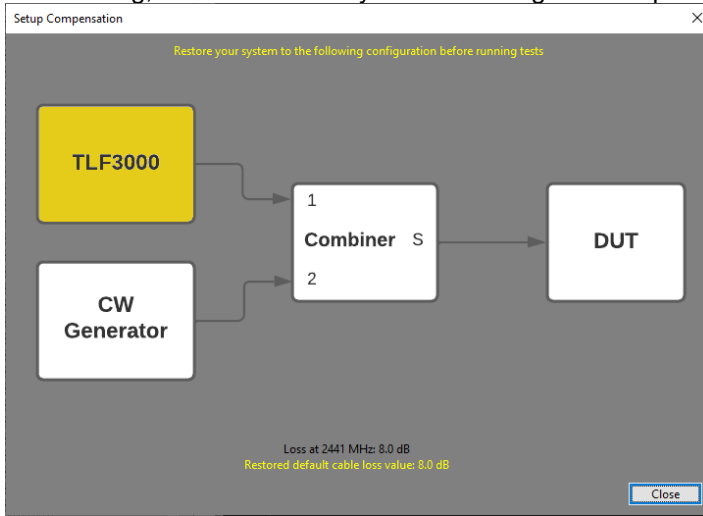


- b) Replace TLF3000 with the 50ohm termination and replace the DUT with TLF3000 as per the dialog window and click *Run* button:



- c) When completed, the measured loss will be displayed. The measurement can be run again if required. When ready, the compensation can be saved using the *Save* button

d) After saving, return the Test System to its original set up as shown in the dialog window:



8.2 Custom Cable Calibration Setup

The *Test System* allows for additional loss compensation if custom cable is used. CSV file with format as follows:

```
freq,loss
30,1.3
500,1.6
1000,1.6
1500,1.4
2000,1.6
2500,1.5
```

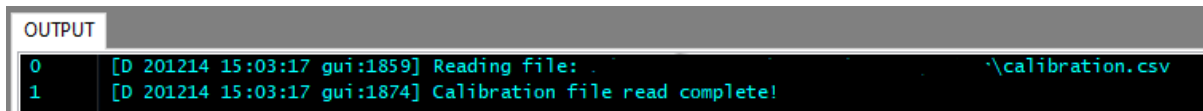
The frequency is in Hz and loss in dB. The *Test System* uses linear interpolation between frequency points.

8.2.1 Import

Select CSV file from above using “select calibration”:



Successful read of calibration data:



9 Test Selection

Tests available to run will be enabled/disabled depending on features declared:

RF-PHY/TRM/BV-08-C	Ready		00:00:00.0	<input checked="" type="checkbox"/>
RF-PHY/TRM/BV-09-C	Ready		00:00:00.0	<input type="checkbox"/>
RF-PHY/TRM/BV-10-C	Ready		00:00:00.0	<input checked="" type="checkbox"/>
RF-PHY/TRM/BV-11-C	Ready		00:00:00.0	<input type="checkbox"/>
RF-PHY/TRM/BV-12-C	Ready		00:00:00.0	<input checked="" type="checkbox"/>
RF-PHY/TRM/BV-13-C	Ready		00:00:00.0	<input type="checkbox"/>
RF-PHY/TRM/BV-14-C	Ready		00:00:00.0	<input type="checkbox"/>
RF-PHY/RCV/BV-01-C	Ready		00:00:00.0	<input checked="" type="checkbox"/>

They can then be selected as desired and will be run in the order displayed. The Transmitter tests are in red and the Receiver tests in blue.

10 Logging and Result view

The FRVS software allows the viewing of logs, a Result Tree to navigate through the results and a Result view to enable a detailed view of each test.

11 Testing

Running/aborting selected tests, with display of status and verdicts.

11.1 Start

After selecting tests, pressing “Start Testing” will cause these to be run:



The current running test has an estimated remaining time:

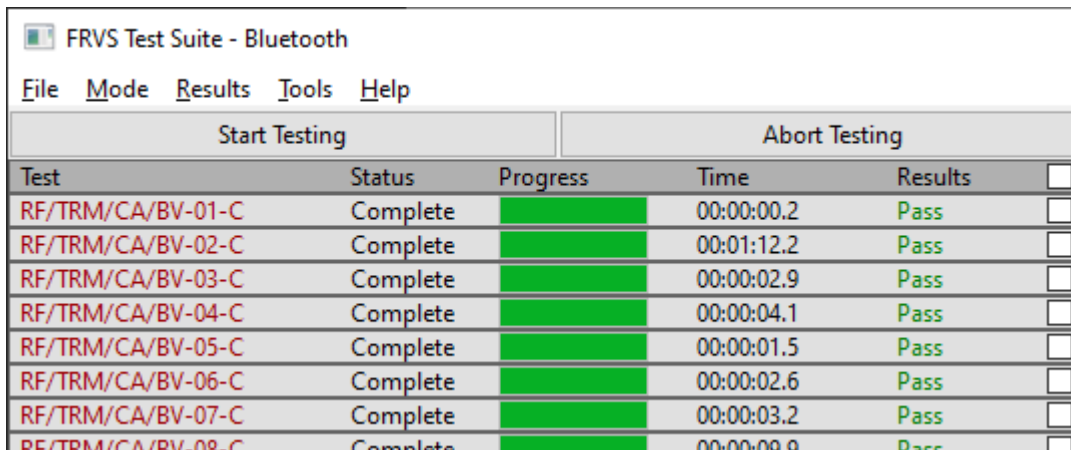
RF-PHY/RCV/BV-03-C	Running	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:31.2	<input checked="" type="checkbox"/>
--------------------	---------	---	------------	-------------------------------------

Results are shown when a test completes, along with elapsed time:

RF-PHY/TRM/BV-01-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:00.8	Pass
RF-PHY/TRM/BV-03-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:01.3	Pass

11.2 Abort

Press “Abort Testing” when testing is running to end test run gracefully as soon as possible:

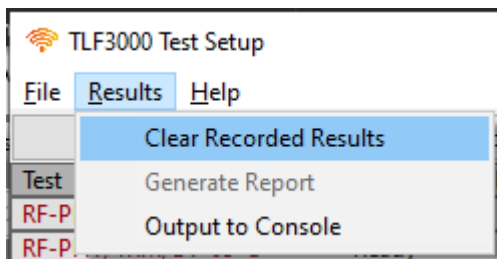


The screenshot shows the FRVS Test Suite - Bluetooth application with the 'Start Testing' and 'Abort Testing' buttons. Below these buttons is a table listing the results of several tests. All tests are marked as 'Complete' with a 100% green progress bar and a 'Pass' result.

Test	Status	Progress	Time	Results	<input type="checkbox"/>
RF/TRM/CA/BV-01-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:00.2	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-02-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:01:12.2	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-03-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:02.9	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-04-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:04.1	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-05-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:01.5	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-06-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:02.6	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-07-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:03.2	Pass	<input type="checkbox"/>
RF/TRM/CA/BV-08-C	Complete	<div style="width: 100%; height: 10px; background-color: green;"></div>	00:00:00.0	Pass	<input type="checkbox"/>

11.3 Clear Results

Existing results can be removed by selecting “Clear Recorded Results”:

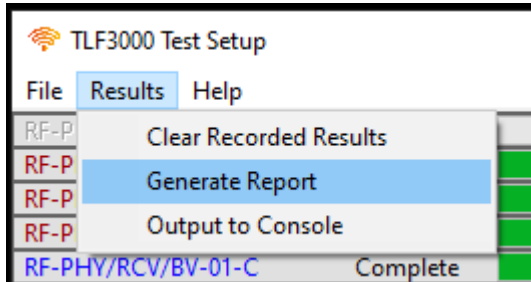


12 Reporting

Results can be exported into PDF format for breakdown of parameterized results and transmission.

12.1 Output

When results exist and tests are not running, report can be generated. Selecting this option prompts user for location and filename for output PDF:



Result summary:

RF-PHY/TRM/BV-01-C	PASS
RF-PHY/TRM/BV-03-C	PASS
RF-PHY/TRM/BV-05-C	PASS
RF-PHY/TRM/BV-06-C	PASS
RF-PHY/TRM/BV-08-C	PASS
RF-PHY/TRM/BV-09-C	NOT SUPPORTED
RF-PHY/TRM/BV-10-C	PASS
RF-PHY/TRM/BV-11-C	NOT SUPPORTED
RF-PHY/TRM/BV-12-C	PASS
RF-PHY/TRM/BV-13-C	PASS

Individual test results:

Start: 2020-12-07 09:49:34
 End: 2020-12-07 09:49:34

PASS

RF-PHY/TRM/BV-01-C

Output power

Channel	Verdict	Pmin	Pmax	Pkmax
0	PASS	-13.89	-13.89	0.40
19	PASS	-14.19	-14.19	0.40
39	PASS	-13.88	-13.88	0.40

12.2 Project folder

The output folder for the report can be changed through the interface:



Appendix A SGS100A Set up

The SGS100A is available as CW or IQ. CW only is required.

The SGS100A must have the following options installed:

- Base unit (SGS-B106)
- 12.75GHz extension (SGS-B112)
- Electronic Step Attenuator (SGS-B26)

The FRVS uses the RF 50Ω output on the rear of the instrument.

The SGS100A is used for Blocking Tests. For LE, select TLF3000 (limited to 6GHz) as the Signal Generator instead of SGS100A to run confidence checks to 6GHz.



Appendix B Calibration Guidelines

For validation services, any calibration should be traceable to national standards and must follow your company's quality and calibration procedures. This section is provided as a guideline only.

To perform calibration of the system, use the TLF3000 GUI. The Signal Generator is used to calibrate the transmitter and the Signal Analyzer used for receiver calibration.

To perform Transmitter calibration a Vector Analyser, Spectrum Analyser or Power Meter may be required depending on the parameter being measured.

To perform Receiver calibration, a calibrated modulation source is required (for example Rohde and Schwarz SGT100A).

Below are guidelines for calibration of the TLF3000 within the *Test System*. The CW generator can use a standard calibration.

B.1 Transmitter

B.1.1 Carrier Frequency

Set the TLF3000 to transmit and measure the frequency.

Test: each channel

Limit: ± 1 ppm (e.g. 2.4kHz at 2400 MHz)

Example:

	MHz		MHz		MHz		MHz
0	2401.999660	20	2422.000146	40	2442.000730	60	2462.001331
1	2402.999578	21	2423.000179	41	2443.000763	61	2463.001363
2	2403.999611	22	2424.000211	42	2444.000795	62	2464.001396
3	2404.999627	23	2425.000243	43	2445.000827	63	2465.001428
4	2405.999659	24	2426.000260	44	2446.000860	64	2466.001440
5	2406.999708	25	2427.000303	45	2447.000876	65	2467.001477
6	2407.999724	26	2428.000325	46	2448.000925	66	2468.001509
7	2408.999757	27	2429.000357	47	2449.000941	67	2469.001541
8	2409.999789	28	2430.000389	48	2450.000974	68	2470.001574
9	2410.999821	29	2431.000422	49	2451.001006	69	2471.001606
10	2411.999854	30	2432.000454	50	2452.001039	70	2472.001639
11	2412.999886	31	2433.000487	51	2453.001071	71	2473.001655
12	2413.999903	32	2434.000503	52	2454.001103	72	2474.001671
13	2414.999935	33	2435.000536	53	2455.001120	73	2475.001720
14	2415.999968	34	2436.000552	54	2456.001152	74	2476.001753
15	2417.000000	35	2437.000600	55	2457.001185	75	2477.001785
16	2418.000016	36	2438.000617	56	2458.001217	76	2478.001801
17	2419.000065	37	2439.000649	57	2459.001250	77	2479.001834
18	2420.000097	38	2440.000682	58	2460.001282	78	2480.001866
19	2421.000130	39	2441.000714	59	2461.001315		

B.1.2 Power Levels – BR/EDR

Set the TLF3000 output power to the required level

Test: DH1/3/5 2402, 2440, 2480MHz -70, -60, -50, -20 dBm
 2DH1/3/5 2402, 2440, 2480MHz -70, -60, -50, -20 dBm
 3DH1/3/5 2402, 2440, 2480MHz -70, -60, -50, -20 dBm

Limit: ± 1.2 dB

B.1.3 Power Levels – LE

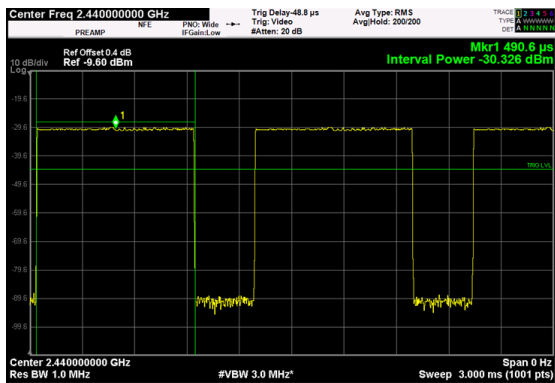
Set the TLF3000 output power to the required level

Test: Wanted 1M 2402 MHz, -70dBm

	2406 MHz -67dBm
	2440 MHz -64dBm
	2440 MHz -30dBm
	2480 MHz -10dBm
Wanted 2M	2402 MHz -70dBm
	2406 MHz -67dBm
	2440 MHz -64dBm
	2440 MHz -30dBm
Interferer 1M	2400 MHz -40dBm
	2440 MHz -50dBm
	2440 MHz -82dBm
	2440 MHz -88dBm
	2483 MHz -40dBm
Interferer 2M	2400 MHz -40dBm
	2440 MHz -50dBm
	2440 MHz -82dBm
	2440 MHz -88dBm
	2482 MHz -40dBm

Limit: ± 1.2 dB

Example:



B.2 Receiver

B.2.1 Carrier Frequency

Set the vector generator to transmit a reference Bluetooth signal in each channel and measure on the TLF3000.

Test: each channel

Limit: ± 5 kHz

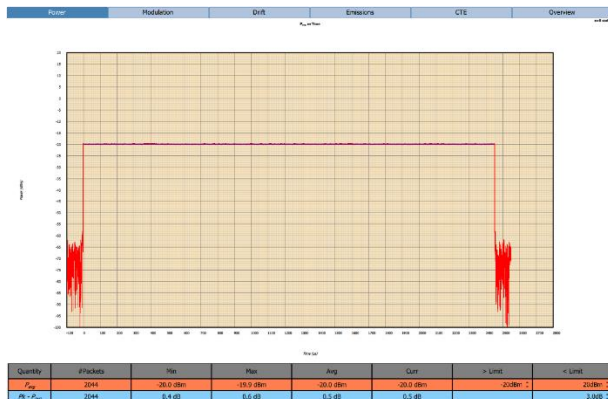
B.2.2 Power Measurement – LE

Set the vector generator to generate a modulated LE signal

Test:	1M	2402 MHz	-15, -20, -25 dBm
		2440 MHz	-15, -20, -25 dBm
		2480 MHz	-15, -20, -25 dBm
2M	2402 MHz	-15, -20, -25 dBm	
	2440 MHz	-15, -20, -25 dBm	
	2480 MHz	-15, -20, -25 dBm	

Limit: ± 1.2 dB

Example:



B.2.3 Modulation Index – BR/EDR

Set the vector generator to generate a reference signal and measure the modulation index on the TLF3000

Test: DH1 at 0.28, 0.30, 0.32, 0.34

DH5 at 0.29, 0.31, 0.32, 0.33, 0.35

Limit: ± 0.02

B.2.4 Modulation Index – LE

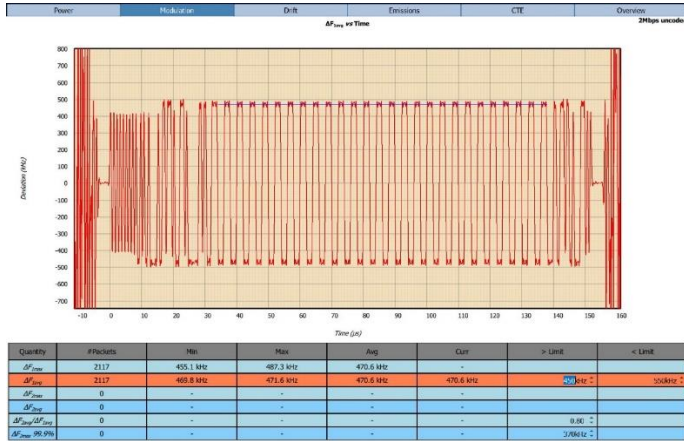
Set the vector generator to generate a reference signal and measure the modulation index on the TLF3000

Test: 1M 0.46, 0.48, 0.50, 0.52, 0.54

2M 0.45, 0.47, 0.50, 0.53, 0.55

Limit: ± 0.02

Example:



B.2.5 Carrier Offset – BR/EDR

Set the vector generator to generate a reference signal and measure the carrier offset on the TLF3000

Test: DH1 -2, 14, 39, -42, 75, -75 kHz
 DH3 1, -2, -19, 75, -75 kHz
 DH5 65, -65 kHz

Limit: \pm 2kHz

Example:

	DH1	DH3	2DH1
-2kHz	-1.908	-	-
14kHz	13.919	-	-
39kHz	39.342	-	-
-42kHz	-41.686	-	-
75kHz	75.145	-	-
-75kHz	-74.984	-	-
1kHz	-	1.1103	-
-2kHz	-	-2.1087	-
-19kHz	-	-19.179	-
75kHz	-	75.118	-
-75kHz	-	-74.667	-
65kHz	-	-	64.772
-65kHz	-	-	-65.169

B.2.6 Carrier Offset – LE

Set the vector generator to generate a reference signal and measure the carrier offset on the TLF3000

Test: 1M 3, 52, 100, -3, -56, kHz
 2M 0, 19, 97, -25, -100 kHz

Limit: \pm 2kHz

B.2.7 CW Interferer

Set the TLF3000 CW interferer to output at the required frequency and power levels.

Test: -50dBm: 30 MHz, 100 MHz, 500 MHz, 1000 MHz, 2000 MHz
 -30dBm: 2500 MHz, 3000 MHz, 5000 MHz, 6000 MHz

Limit: \pm 1.5dB