

morephcs.

channel sounding



A Bluetooth® LE Channel Sounding Application for the moreph30 hardware platform. When used in conjunction with RFcreations programmable switch box it can perform all of the tests set out in the Bluetooth LE Channel Sounding RFPHY test specification and the Channel Sounding Layer test specification. Channel Sounding captures, including raw IQ data, can be exported, and shared with other users. Validate your implementation now, used at the SIG IOP Sessions.

KEY FEATURES:

- Support for all RFPHY test cases, including BT=2.0 modulation index.
- Support for all Channel Sounding Layer test cases. These tests are performed using the HCI test command and not via an over-the-air link.
- Simple control via comprehensive GUI or Python/C dll.
- Extensive graphics including:
 - 1MHz x 1µs spectrogram of the entire Channel Sounding procedure
 - IQ waveforms of wanted and companion signals
 - Demodulated waveforms of wanted and companion signals
 - Gated spectra of initiator or reflector
 - ToF vs channel sounding step
 - Linear phase regression
- Log of all HCI traffic and key events.
- Export of raw IQ data, spectrogram or entire capture to share with other users.

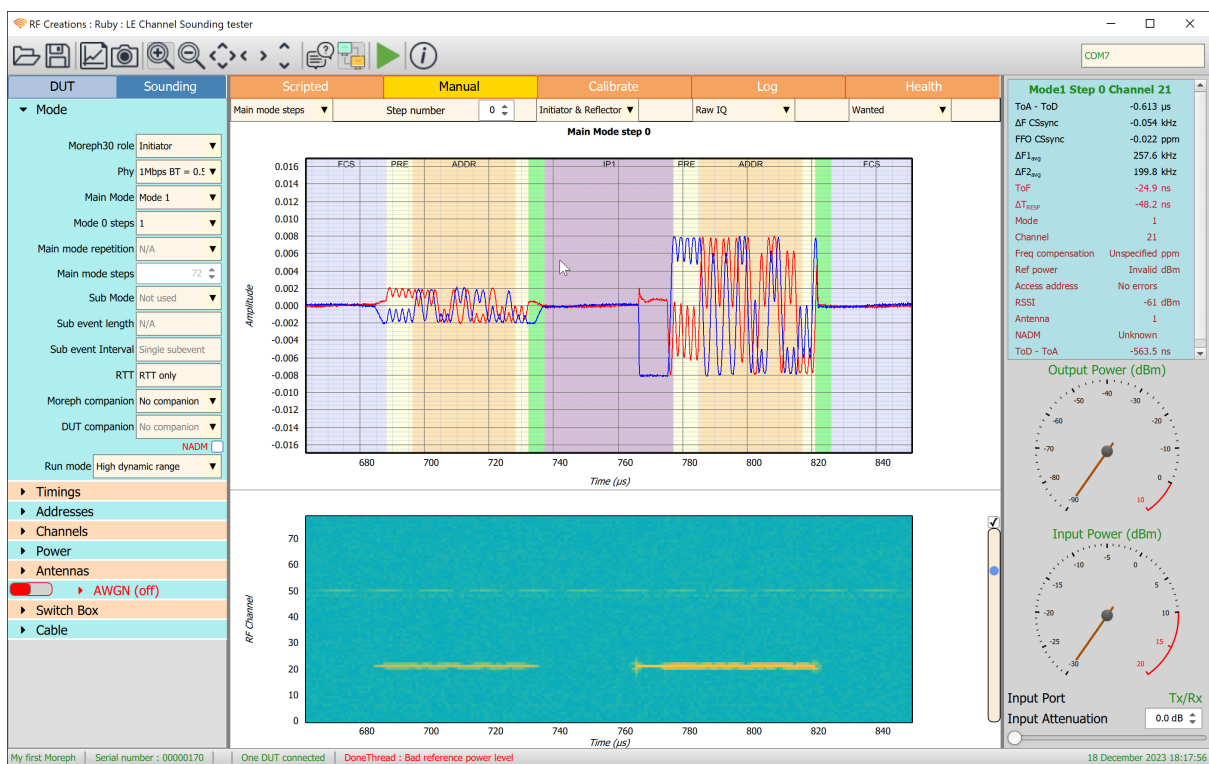


USE CASES:

- **PRE-COMPLIANCE TESTER:** Allows the developer to "pre-test" with confidence before committing to test house.
- **SILICON EVALUATION:** Capture corrupt waveforms for detailed analysis and perform RF-PHY testing on live links.
- **SILICON CHARACTERISATION:** Eliminates the need for additional test equipment, dramatically reducing test time and increasing throughput.
- **RMA ANALYSIS:** Simple to use GUI rapidly identifies faults.

OPERATING MODES:

- **SCRIPTED:** Scripted support for all RFPHY test cases and Channel Sounding Layer test cases. Test parameters can be edited to form custom scripts.
- **MANUAL:** The unit can act either as an initiator or reflector performing an arbitrary Channel Sounding procedure as defined by the user. If a IUT is attached, then HCI event reports are captured and analysed. All key parameters such as ToF, linear phase regression and spectra are calculated. IQ and spectrum data are available for viewing or export.
- **CALIBRATE:** Permits the amplitude and phase response of the moreph30 to be calibrated.



SUPPORTED TEST CASES:

The morephCS application supports the tests listed below, there is full support for all RF-PHY test cases and the Channel Sounding Part H Specification Tests. Please note that some of the tests are for indication only and for qualification evidence purposes a validated Link Layer Tester is required.

TEST NAME/NUMBER	DISCRIPTION	COMMENT
RFPHY/TRM/CS/BV-01-C	Stable Phase 1 Ms/s Mode-2	
RFPHY/TRM/CS/BV-02-C	Stable Phase 2 Ms/s Mode-2	
RFPHY/TRM/CS/BV-03-C	Modulation Characteristics 2 Ms/s 2BT Mode-1	
RFPHY/TRM/CS/BV-04-C	Modulation Characteristics 2 Ms/s 2BT Mode-3	
RFPHY/TRM/CS/BV-05-C	TX SNR Output Control 1 Ms/s Mode-1	
RFPHY/TRM/CS/BV-06-C	TX SNR Output Control 1 Ms/s Mode-3	
RFPHY/TRM/CS/BV-07-C	TX SNR Output Control 2 Ms/s Mode-1	
RFPHY/TRM/CS/BV-08-C	TX SNR Output Control 2 Ms/s Mode-3	
RFPHY/TRM/CS/BV-09-C	TX SNR Output Control 2 Ms/s Mode-1 2BT	
RFPHY/TRM/CS/BV-10-C	TX SNR Output Control 2 Ms/s Mode-3 2BT	
RFPHY/TRM-RCV/CS/BV-01-C	Step Mode-0 Frequency Verification 1 Ms/s	
RFPHY/TRM-RCV/CS/BV-02-C	Step Mode-0 Frequency Verification 2 Ms/s	
RFPHY/TRM-RCV/CS/BV-03-C	Step Mode-0 Frequency Verification 2 Ms/s 2BT	
RFPHY/TRM-RCV/CS/BV-04-C	Step Main Mode Frequency Verification 1 Ms/s Mode-1	
RFPHY/TRM-RCV/CS/BV-05-C	Step Main Mode Frequency Verification 1 Ms/s Mode-2	
RFPHY/TRM-RCV/CS/BV-06-C	Step Main Mode Frequency Verification 1 Ms/s Mode-3	
RFPHY/TRM-RCV/CS/BV-07-C	Step Main Mode Frequency Verification 2 Ms/s Mode-1	
RFPHY/TRM-RCV/CS/BV-08-C	Step Main Mode Frequency Verification 2 Ms/s Mode-3	
RFPHY/TRM-RCV/CS/BV-09-C	Step Main Mode Frequency Verification 2 Ms/s 2BT Mode-1	
RFPHY/TRM-RCV/CS/BV-10-C	Step Main Mode Frequency Verification 2 Ms/s 2BT Mode-3	
RFPHY/TRM-RCV/CS/BV-47-C	Step Main Mode Frequency Verification 1 Ms/s Mode-2	
RFPHY/TRM-RCV/CS/BV-48-C	Step Main Mode Frequency Verification 1 Ms/s Mode-3	
RFPHY/TRM-RCV/CS/BV-49-C	Step Main Mode Frequency Verification 2 Ms/s Mode-3	
RFPHY/TRM-RCV/CS/BV-50-C	Step Main Mode Frequency Verification 2 Ms/s 2BT Mode-3	
RFPHY/TRM-RCV/CS/BV-11-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector	
RFPHY/TRM-RCV/CS/BV-12-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-13-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-14-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-15-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Initiator	
RFPHY/TRM-RCV/CS/BV-16-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Initiator	



RFPHY/TRM-RCV/CS/BV-17-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-18-C	Phase Measurement Accuracy 2 Ms/s 2BT Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-19-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector	
RFPHY/TRM-RCV/CS/BV-20-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector	
RFPHY/TRM-RCV/CS/BV-21-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-22-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-23-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-24-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-25-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-26-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector	
RFPHY/TRM-RCV/CS/BV-27-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Initiator	
RFPHY/TRM-RCV/CS/BV-28-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Initiator	
RFPHY/TRM-RCV/CS/BV-29-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-30-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-31-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-32-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-33-C	Phase Measurement Accuracy 2 Ms/s 2BT Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-34-C	Phase Measurement Accuracy 2 Ms/s 2BT Mode-3 Initiator	
RFPHY/TRM-RCV/CS/BV-35-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-36-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-37-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-38-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-39-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-40-C	Phase Measurement Accuracy 1 Ms/s Mode-2 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-41-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-42-C	Phase Measurement Accuracy 1 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-43-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-44-C	Phase Measurement Accuracy 2 Ms/s Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-45-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector Inline PCT	
RFPHY/TRM-RCV/CS/BV-46-C	Phase Measurement Accuracy 2 Ms/s BT = 2.0 Mode-3 Reflector Inline PCT	
RFPHY/TRM/CS/BV-910-C	Verify Companion Signal Frequency Offset 1 Ms/s -2 MHz	Deprecated
RFPHY/TRM/CS/BV-911-C	Verify Companion Signal Frequency Offset 1 Ms/s +2 MHz	Deprecated
RFPHY/TRM/CS/BV-912-C	Verify Companion Signal Frequency Offset 1 Ms/s +/-2 MHz	Deprecated
RFPHY/TRM/CS/BV-913-C	Verify Companion Signal Frequency Offset 2 Ms/s -4 MHz	Deprecated
RFPHY/TRM/CS/BV-914-C	Verify Companion Signal Frequency Offset 2 Ms/s +4 MHz	Deprecated
RFPHY/TRM/CS/BV-915-C	Verify Companion Signal Frequency Offset 2 Ms/s +/-4 MHz	Deprecated
RFPHY/TRM/CS/BV-916-C	Verify Companion Signal Modulation characteristics 1 Ms/s -2 MHz	Deprecated
RFPHY/TRM/CS/BV-917-C	Verify Companion Signal Modulation characteristics 1 Ms/s +2 MHz	Deprecated
RFPHY/TRM/CS/BV-918-C	Verify Companion Signal Modulation characteristics 1 Ms/s +/-2 MHz	Deprecated



RFPHY/TRM/CS/BV-919-C	Verify Companion Signal Modulation characteristics 2 Ms/s -4 MHz	Deprecated
RFPHY/TRM/CS/BV-920-C	Verify Companion Signal Modulation characteristics 2 Ms/s +4 MHz	Deprecated
RFPHY/TRM/CS/BV-921-C	Verify Companion Signal Modulation characteristics 2 Ms/s +/-4 MHz	Deprecated
RFPHY/TRM/CS/BV-922-C	Verify Companion Signal ACP 1 Ms/s -2 MHz	Deprecated
RFPHY/TRM/CS/BV-923-C	Verify Companion Signal ACP 1 Ms/s +2 MHz	Deprecated
RFPHY/TRM/CS/BV-924-C	Verify Companion Signal ACP 1 Ms/s +/-2 MHz	Deprecated
RFPHY/TRM/CS/BV-925-C	Verify Companion Signal ACP 2 Ms/s -4 MHz	Deprecated
RFPHY/TRM/CS/BV-926-C	Verify Companion Signal ACP 2 Ms/s +4 MHz	Deprecated
RFPHY/TRM/CS/BV-927-C	Verify Companion Signal ACP 2 Ms/s +/-4 MHz	Deprecated
RFPHY/TRM/CS/BV-930-C	Modulation Spectrum at 1 Ms/s Mode-1	Deprecated
RFPHY/TRM/CS/BV-931-C	Modulation Spectrum at 2 Ms/s Mode-1	Deprecated
RFPHY/TRM/CS/BV-932-C	Modulation Spectrum at 2 Ms/s 2BT Mode-1	Deprecated
CS/NAD/REF/BV-01-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-02-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-03-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-04-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-05-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-06-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-07-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-08-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-09-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-10-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-11-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-12-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Reflector LE 1M PHY	
CS/NAD/INI/BV-01-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-02-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-03-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-04-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-05-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-06-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-07-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-08-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-09-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-10-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-11-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Initiator LE 1M PHY	
CS/NAD/INI/BV-12-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Initiator LE 1M PHY	
CS/NAD/REF/BV-13-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-14-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Reflector LE 2M PHY	



CS/NAD/REF/BV-15-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-16-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-17-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-18-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-19-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-20-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-21-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-22-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-23-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Reflector LE 2M PHY	
CS/NAD/REF/BV-24-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Reflector LE 2M PHY	
CS/NAD/INI/BV-13-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-14-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-15-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-16-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-17-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-18-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-19-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-20-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-21-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-22-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-23-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Initiator LE 2M PHY	
CS/NAD/INI/BV-24-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Initiator LE 2M PHY	
CS/NAD/REF/BV-25-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-26-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-27-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-28-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-29-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-30-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-31-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-32-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-33-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-34-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-35-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-36-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Reflector LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-25-C	Normalized Attack Detector Metric Mode-1 Random Sequence 32-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-26-C	Normalized Attack Detector Metric Mode-1 Random Sequence 64-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-27-C	Normalized Attack Detector Metric Mode-1 Random Sequence 96-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-28-C	Normalized Attack Detector Metric Mode-1 Random Sequence 128-bits Initiator LE 2M PHY BT = 2.0	



CS/NAD/INI/BV-29-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 32-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-30-C	Normalized Attack Detector Metric Mode-1 Sounding Sequence 96-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-31-C	Normalized Attack Detector Metric Mode-3 Random Sequence 32-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-32-C	Normalized Attack Detector Metric Mode-3 Random Sequence 64-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-33-C	Normalized Attack Detector Metric Mode-3 Random Sequence 96-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-34-C	Normalized Attack Detector Metric Mode-3 Random Sequence 128-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-35-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 32-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/INI/BV-36-C	Normalized Attack Detector Metric Mode-3 Sounding Sequence 96-bits Initiator LE 2M PHY BT = 2.0	
CS/NAD/REF/BV-37-C	AM Attack NADM Square Wave Mode-1 Random Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-38-C	AM Attack NADM Square Wave Mode-1 Sounding Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-39-C	AM Attack NADM Square Wave Mode-3 Random Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-40-C	AM Attack NADM Square Wave Mode-3 Sounding Sequence 32-bits Reflector LE 1M PHY	
CS/NAD/REF/BV-41-C	AM Attack NADM Square Wave Mode-1 Random Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-42-C	AM Attack NADM Square Wave Mode-1 Sounding Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-43-C	AM Attack NADM Square Wave Mode-3 Random Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-44-C	AM Attack NADM Square Wave Mode-3 Sounding Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-45-C	AM Attack NADM Square Wave Mode-1 Random Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-46-C	AM Attack NADM Square Wave Mode-1 Sounding Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-47-C	AM Attack NADM Square Wave Mode-3 Random Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/NAD/REF/BV-48-C	AM Attack NADM Square Wave Mode-3 Sounding Sequence 32-bits Reflector LE 2M 2BT PHY	
CS/PAC/REF/BV-01-C	Sounding Sequence Marker Signals Reflector LE 1M Mode-1 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-02-C	Sounding Sequence Marker Signals Reflector LE 2M Mode-1 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-01-C	Sounding Sequence Marker Signals Initiator LE 1M Mode-1 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-02-C	Sounding Sequence Marker Signals Initiator LE 2M Mode-1 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-03-C	Sounding Sequence Marker Signals Reflector LE 1M Mode-1 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-04-C	Sounding Sequence Marker Signals Reflector LE 1M Mode-1 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-03-C	Sounding Sequence Marker Signals Initiator LE 1M Mode-1 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-04-C	Sounding Sequence Marker Signals Initiator LE 2M Mode-1 96-bit	INDICATION ONLY LL TESTER.



CS/PAC/REF/BV-05-C	Sounding Sequence Marker Signals Reflector LE 1M Mode-3 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-06-C	Sounding Sequence Marker Signals Reflector LE 2M Mode-3 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-05-C	Sounding Sequence Marker Signals Initiator LE 1M Mode-3 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-06-C	Sounding Sequence Marker Signals Initiator LE 2M Mode-3 32-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-07-C	Sounding Sequence Marker Signals Reflector LE 1M Mode-3 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-08-C	Sounding Sequence Marker Signals Reflector LE 2M Mode-3 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-07-C	Sounding Sequence Marker Signals Initiator LE 1M Mode-3 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-08-C	Sounding Sequence Marker Signals Initiator LE 2M Mode-3 96-bit	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-09-C	Random Sequence LE 1M Mode 1 32-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-09-C	Random Sequence LE 1M Mode 1 32-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-10-C	Random Sequence LE 1M Mode 1 64-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-10-C	Random Sequence LE 1M Mode 1 64-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-11-C	Random Sequence LE 1M Mode 1 96-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-11-C	Random Sequence LE 1M Mode 1 96-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-12-C	Random Sequence LE 1M Mode 1 128-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-12-C	Random Sequence LE 1M Mode 1 128-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-13-C	Random Sequence LE 2M Mode 1 32-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-13-C	Random Sequence LE 2M Mode 1 32-bit Reflector	INDICATION ONLY LL TESTER.



CS/PAC/INI/BV-14-C	Random Sequence LE 2M Mode 1 64-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-14-C	Random Sequence LE 2M Mode 1 64-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-15-C	Random Sequence LE 2M Mode 1 96-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-15-C	Random Sequence LE 2M Mode 1 96-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-16-C	Random Sequence LE 2M Mode 1 128-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-16-C	Random Sequence LE 2M Mode 1 128-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-17-C	Random Sequence LE 1M Mode 3 32-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-17-C	Random Sequence LE 1M Mode 3 32-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-18-C	Random Sequence LE 1M Mode 3 64-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-18-C	Random Sequence LE 1M Mode 3 64-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-19-C	Random Sequence LE 1M Mode 3 96-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-19-C	Random Sequence LE 1M Mode 3 96-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-20-C	Random Sequence LE 1M Mode 3 128-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-20-C	Random Sequence LE 1M Mode 3 128-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-21-C	Random Sequence LE 2M Mode 3 32-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-21-C	Random Sequence LE 2M Mode 3 32-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-22-C	Random Sequence LE 2M Mode 3 64-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-22-C	Random Sequence LE 2M Mode 3 64-bit Reflector	INDICATION ONLY LL TESTER.



CS/PAC/INI/BV-23-C	Random Sequence LE 2M Mode 3 96-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-23-C	Random Sequence LE 2M Mode 3 96-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-24-C	Random Sequence LE 2M Mode 3 128-bit Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-24-C	Random Sequence LE 2M Mode 3 128-bit Reflector	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-25-C	Access address quality indicator LE 1M	
CS/PAC/REF/BV-26-C	Access address quality indicator LE 2M	
CS/PAC/INI/BV-27-C	Sounding Sequence 32-bit with invalid marker Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-27-C	Sounding Sequence 32-bit with invalid marker Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-28-C	Sounding Sequence 96-bit with invalid marker Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-28-C	Sounding Sequence 96-bit with invalid marker Reflector	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-29-C	Channel Index Selection Algorithm #3b Reflector	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-29-C	Channel Index Selection Algorithm #3b Initiator	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-30-C	Channel Index Selection Algorithm #3c Reflector Hat	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-30-C	Channel Index Selection Algorithm #3c Initiator Hat	INDICATION ONLY LL TESTER.
CS/PAC/REF/BV-31-C	Channel Index Selection Algorithm #3c Reflector Interleaved	INDICATION ONLY LL TESTER.
CS/PAC/INI/BV-31-C	Channel Index Selection Algorithm #3c Initiator Interleaved	INDICATION ONLY LL TESTER.
CS/RTT/INI/BV-01-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT AA-Only	
CS/RTT/INI/BV-02-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT AA-Only	
CS/RTT/INI/BV-03-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT AA-Only	
CS/RTT/INI/BV-04-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT AA-Only	
CS/RTT/INI/BV-13-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 32-bit Sounding Sequence	
CS/RTT/INI/BV-14-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 32-bit Sounding Sequence	
CS/RTT/INI/BV-15-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 32-bit Sounding Sequence	



CS/RTT/INI/BV-16-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 32-bit Sounding Sequence	
CS/RTT/INI/BV-17-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-18-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-19-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-20-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-21-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-22-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-23-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-24-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-25-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-26-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-27-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-28-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-29-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-30-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-31-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-32-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-33-C	Channel Sounding - RTT Initiator LE 1M Mode-1 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-34-C	Channel Sounding - RTT Initiator LE 1M Mode-3 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-35-C	Channel Sounding - RTT Initiator LE 2M Mode-1 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-36-C	Channel Sounding - RTT Initiator LE 2M Mode-3 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-37-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT AA-Only	
CS/RTT/INI/BV-38-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT AA-Only	
CS/RTT/INI/BV-39-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 32-bit Sounding Sequence	
CS/RTT/INI/BV-40-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 32-bit Sounding Sequence	
CS/RTT/INI/BV-41-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-42-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/INI/BV-43-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-44-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 32-bit Random Sequence	
CS/RTT/INI/BV-45-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-46-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 64-bit Random Sequence	
CS/RTT/INI/BV-47-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-48-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 96-bit Random Sequence	
CS/RTT/INI/BV-49-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-1 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-50-C	Channel Sounding - RTT Initiator LE 2M 2BT Mode-3 RTT 128-bit Random Sequence	
CS/RTT/INI/BV-51-C	Channel Sounding - RTT Initiator LE 1M RTT AA-Only Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-52-C	Channel Sounding - RTT Initiator LE 1M RTT Random Sequence Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-53-C	Channel Sounding - RTT Initiator LE 1M RTT Sounding Sequence Max T_SY_CENTER_DELTA	



CS/RTT/INI/BV-54-C	Channel Sounding - RTT Initiator LE 2M RTT AA-Only Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-55-C	Channel Sounding - RTT Initiator LE 2M RTT Random Sequence Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-56-C	Channel Sounding - RTT Initiator LE 2M RTT Sounding Sequence Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-57-C	Channel Sounding - RTT Initiator LE 2M 2BT RTT AA-Only Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-58-C	Channel Sounding - RTT Initiator LE 2M 2BT RTT Random Sequence Max T_SY_CENTER_DELTA	
CS/RTT/INI/BV-59-C	Channel Sounding - RTT Initiator LE 2M 2BT RTT Sounding Sequence Max T_SY_CENTER_DELTA	
CS/RTT/REF/BV-01-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT AA-Only	
CS/RTT/REF/BV-02-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT AA-Only	
CS/RTT/REF/BV-03-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT AA-Only	
CS/RTT/REF/BV-04-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT AA-Only	
CS/RTT/REF/BV-13-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 32-bit Sounding Sequence	
CS/RTT/REF/BV-14-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 32-bit Sounding Sequence	
CS/RTT/REF/BV-15-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 32-bit Sounding Sequence	
CS/RTT/REF/BV-16-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 32-bit Sounding Sequence	
CS/RTT/REF/BV-17-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-18-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-19-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-20-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-21-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-22-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-23-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-24-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-25-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-26-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-27-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-28-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-29-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-30-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-31-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-32-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-33-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-34-C	Channel Sounding - RTT Reflector LE 1M Mode-3 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-35-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-36-C	Channel Sounding - RTT Reflector LE 2M Mode-3 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-37-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT AA-Only	
CS/RTT/REF/BV-38-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT AA-Only	
CS/RTT/REF/BV-39-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 32-bit Sounding Sequence	
CS/RTT/REF/BV-40-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 32-bit Sounding Sequence	



CS/RTT/REF/BV-41-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-42-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 96-bit Sounding Sequence	
CS/RTT/REF/BV-43-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-44-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 32-bit Random Sequence	
CS/RTT/REF/BV-45-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-46-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 64-bit Random Sequence	
CS/RTT/REF/BV-47-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-48-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 96-bit Random Sequence	
CS/RTT/REF/BV-49-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-50-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-3 RTT 128-bit Random Sequence	
CS/RTT/REF/BV-51-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT AA-Only Longest Mode-1	
CS/RTT/REF/BV-52-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT Random Sequence Longest Mode-1	
CS/RTT/REF/BV-53-C	Channel Sounding - RTT Reflector LE 1M Mode-1 RTT Sounding Sequence Max T_SY_CENTER_DELTA	
CS/RTT/REF/BV-54-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT AA-Only Longest Mode-1	
CS/RTT/REF/BV-55-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT Random Sequence Longest Mode-1	
CS/RTT/REF/BV-56-C	Channel Sounding - RTT Reflector LE 2M Mode-1 RTT Sounding Sequence Max T_SY_CENTER_DELTA	
CS/RTT/REF/BV-57-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT AA-Only Longest Mode-1	
CS/RTT/REF/BV-58-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT Random Sequence Longest Mode-1	
CS/RTT/REF/BV-59-C	Channel Sounding - RTT Reflector LE 2M 2BT Mode-1 RTT Sounding Sequence Max T_SY_CENTER_DELTA	
CS/TIM/INI/BV-01-C	CS_SYNC packets Timing Verification Initiator 1 Ms/s Mode-1	
CS/TIM/INI/BV-02-C	CS_SYNC packets Timing Verification Initiator 1 Ms/s Mode-3	
CS/TIM/INI/BV-03-C	CS_SYNC packets Timing Verification Initiator 2 Ms/s Mode-1	
CS/TIM/INI/BV-04-C	CS_SYNC packets Timing Verification Initiator 2 Ms/s Mode-3	
CS/TIM/INI/BV-05-C	CS_SYNC packets Timing Verification Initiator 2 Ms/s BT = 2.0 Mode-1	
CS/TIM/INI/BV-06-C	CS_SYNC packets Timing Verification Initiator 2 Ms/s BT = 2.0 Mode-1	
CS/TIM/INI/BV-07-C	Power Ramp Profile Ramp-down Initiator Step Mode-1	
CS/TIM/INI/BV-08-C	Power Ramp Profile Ramp-down Initiator Step Mode-2	
CS/TIM/INI/BV-09-C	Power Ramp Profile Ramp-down Initiator Step Mode-3	
CS/TIM/REF/BV-01-C	CS_SYNC packets Timing Verification Reflector 1 Ms/s Mode-1	
CS/TIM/REF/BV-02-C	CS_SYNC packets Timing Verification Reflector 1 Ms/s Mode-3	
CS/TIM/REF/BV-03-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s Mode-1	
CS/TIM/REF/BV-04-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s Mode-3	
CS/TIM/REF/BV-05-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s BT = 2.0 Mode-1	
CS/TIM/REF/BV-06-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s BT = 2.0 Mode-3	
CS/TIM/REF/BV-41-C	CS_SYNC packets Timing Verification Reflector 1 Ms/s Mode-3	
CS/TIM/REF/BV-42-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s Mode-3	
CS/TIM/REF/BV-43-C	CS_SYNC packets Timing Verification Reflector 2 Ms/s BT = 2.0 Mode-3	
CS/TIM/REF/BV-08-C	Power Ramp Profile Ramp-down Reflector Step Mode-1	



CS/TIM/REF/BV-09-C	Power Ramp Profile Ramp-down Reflector Step Mode-2	
CS/TIM/REF/BV-10-C	Power Ramp Profile Ramp-down Reflector Step Mode-3	
CS/TIM/REF/BV-51-C	Power Ramp Profile Ramp-down Reflector Step Mode-2	
CS/TIM/REF/BV-52-C	Power Ramp Profile Ramp-down Reflector Step Mode-3	
CS/PM/INI/BV-03-C	Initiator Transmit Antenna Switching Integrity LE 1M Mode-2 N_AP:1	
CS/PM/INI/BV-04-C	Initiator Transmit Antenna Switching Integrity LE 1M Mode-3 N_AP:1	
CS/PM/INI/BV-07-C	Initiator Transmit Antenna Switching Integrity LE 1M Mode-2 2:2	
CS/PM/INI/BV-08-C	Initiator Transmit Antenna Switching Integrity LE 1M Mode-3 2:2	
CS/PM/INI/BV-17-C	Initiator Transmit Antenna Switching Integrity LE 2M Mode-3 N_AP:1	
CS/PM/INI/BV-18-C	Initiator Transmit Antenna Switching Integrity LE 2M Mode-3 2:2	
CS/PM/REF/BV-06-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-2 1:N_AP	
CS/PM/REF/BV-07-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-3 1:N_AP	
CS/PM/REF/BV-08-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-2 2:2	
CS/PM/REF/BV-09-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-3 2:2	
CS/PM/REF/BV-18-C	Reflector Receive Antenna Switching Integrity LE 2M Mode-3 1:N_AP	
CS/PM/REF/BV-19-C	Reflector Receive Antenna Switching Integrity LE 2M Mode-3 2:2	
CS/PM/REF/BV-41-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-2 1:N_AP inline PCT	
CS/PM/REF/BV-42-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-3 1:N_AP inline PCT	
CS/PM/REF/BV-43-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-2 2:2 inline PCT	
CS/PM/REF/BV-44-C	Reflector Receive Antenna Switching Integrity LE 1M Mode-3 2:2 inline PCT	
CS/PM/REF/BV-45-C	Reflector Receive Antenna Switching Integrity LE 2M Mode-3 1:N_AP inline PCT	
CS/PM/REF/BV-46-C	Reflector Receive Antenna Switching Integrity LE 2M Mode-3 2:2 inline PCT	
CS/PM/INI/BV-01-C	Phase Measurements during T_PM Initiator Mode-2	
CS/PM/REF/BV-01-C	Phase Measurements during T_PM Reflector Mode-2	
CS/PM/REF/BV-02-C	Phase Measurements during T_PM Reflector Mode-2 SubMode-1	
CS/PM/INI/BV-02-C	Phase Measurements during T_PM Initiator Mode-3	
CS/PM/REF/BV-03-C	Phase Measurements during T_PM Reflector Mode-3	
CS/PM/INI/BV-51-C	Phase Measurements during T_PM Initiator Mode-2 inline PCT	
CS/PM/REF/BV-52-C	Phase Measurements during T_PM Reflector Mode-2 inline PCT	
CS/PM/REF/BV-53-C	Phase Measurements during T_PM Reflector Mode-2 SubMode-1 inline PCT	
CS/PM/INI/BV-54-C	Phase Measurements during T_PM Initiator Mode-3 inline PCT	
CS/PM/REF/BV-55-C	Phase Measurements during T_PM Reflector Mode-3 inline PCT	
CS/PM/INI/BV-09-C	Phase Based Distance Estimate Sounding Sequence Initiator Mode-1 32-bit Sounding Sequence	
CS/PM/REF/BV-10-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-1 32-bit Sounding Sequence	
CS/PM/INI/BV-10-C	Phase Based Distance Estimate Sounding Sequence Initiator Mode-1 96-bit Sounding Sequence	
CS/PM/REF/BV-11-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-1 96-bit Sounding Sequence	
CS/PM/INI/BV-11-C	Phase Based Distance Estimate Sounding Sequence Initiator Mode-3 32-bit Sounding Sequence	
CS/PM/REF/BV-12-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-3 32-bit Sounding Sequence	



CS/PM/INI/BV-12-C	Phase Based Distance Estimate Sounding Sequence Initiator Mode-3 96-bit Sounding Sequence	
CS/PM/REF/BV-13-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-3 96-bit Sounding Sequence	
CS/PM/INI/BV-13-C	Phase Based Distance Estimate Sounding Sequence LE 2M Initiator Mode-1 32-bit Sounding Sequence	
CS/PM/REF/BV-14-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-1 32-bit Sounding Sequence	
CS/PM/INI/BV-14-C	Phase Based Distance Estimate Sounding Sequence LE 2M Initiator Mode-1 96-bit Sounding Sequence	
CS/PM/REF/BV-15-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-1 96-bit Sounding Sequence	
CS/PM/INI/BV-15-C	Phase Based Distance Estimate Sounding Sequence LE 2M Initiator Mode-3 32-bit Sounding Sequence	
CS/PM/REF/BV-16-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-3 32-bit Sounding Sequence	
CS/PM/INI/BV-16-C	Phase Based Distance Estimate Sounding Sequence LE 2M Initiator Mode-3 96-bit Sounding Sequence	
CS/PM/REF/BV-17-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-3 96-bit Sounding Sequence	
CS/PM/REF/BV-71-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-3 32-bit Sounding Sequence	
CS/PM/REF/BV-72-C	Phase Based Distance Estimate Sounding Sequence Reflector Mode-3 96-bit Sounding Sequence	
CS/PM/REF/BV-73-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-3 32-bit Sounding Sequence	
CS/PM/REF/BV-74-C	Phase Based Distance Estimate Sounding Sequence LE 2M Reflector Mode-3 96-bit Sounding Sequence	

TECHNICAL SPECIFICATION:

RX INPUT: HIGH SENSITIVITY

Connector type	SMA
Noise figure	6dB
IP3 @ max sensitivity	+7dBm
SNR in 1MHz bandwidth	80dB
Maximum input signal	+27dBm
Maximum usable signal	-10dBm
Instantaneous bandwidth	2401 – 2481 MHz
Impedance	50Ω
Coupling	AC
Maximum DC voltage	50V

RX INPUT: LOW SENSITIVITY:

Connector type	SMA
Noise figure	46dB
IP3 @ max sensitivity	+47dBm
SNR in 1MHz bandwidth	80dB
Maximum input signal	+27dBm
Maximum usable signal	+27dBm
Instantaneous bandwidth	2401 – 2481 MHz
Impedance	50Ω
Coupling	AC
Maximum DC voltage	50V



TX OUTPUT:

Connector type	SMA
Instantaneous dynamic range	>80dB typ
Maximum output signal	+3dBm
Minimum output signal	-130dBm
Instantaneous bandwidth	2401 – 2481 MHz
Impedance	50Ω
Coupling	AC
Maximum DC voltage	50V

CW SOURCE

Minimum frequency	23.5MHz
Maximum frequency	6GHz
Minimum power	-50 dBm
Maximum power	-28 dBm

EXTERNAL CLOCK INPUT

Connector type	SMA
Maximum input signal	-10dBm
Minimum input signal	+20dBm
Frequency	10 MHz
Impedance	50Ω
Coupling	AC
Maximum DC voltage	50V

DIGITAL IO

Connector type	20pin IDC
Number of inputs	8
Logic input high	2.4V (min)
Logic input low	0.9V (max)
Number of outputs	8
Logic output high	3.2V (min)
Logic output low	0.1V (max)
Output current	±6mA

USB:

Connector type	Type-C
Speed	High speed
VBUS load	2.2μF, > 10kΩ

ETHERNET:

Connector type	RJ-45
Speed	10/100/1000

POWER:

Connector type	1.7mm jack
Input voltage	9V
Power	15W (application dependent)
Reverse polarity protection	Yes
Over voltage protection	Yes
Under voltage protection	Yes



REGULATORY APPROVALS:

Europe (CE)	EN61326-1:2013 EN55011:2009 EN55032:2012
US (FCC)	CFR 47 Pt 15 B

SUPPORTED HOSTS:

Supported hosts	Windows 7 or higher Linux on request macOS on request
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WHAT'S IN THE BOX

- 1 morephCS Test Instrument with CS RF-PHY Test Licence (Other licences can be added)
- 1 soft dust bag.
- 1 USB-A to USB-C cable, grey, 1m 1 Antenna, black.
- 1 12V PSU

If blueSPY PRO licence option has been purchased:

- 1 Logic Probe Pod
- 1 Hirose to Hirose cable, black, 300mm
- 1 Logic Cable, MK18
- 1 Set of EZ Clips (16 grey, 1 red & 1 black)



CONTACT RFCREATIONS TODAY TO FIND OUT MORE AND SEE OUR DIFFERENT PERSPECTIVE!

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www.rfcreations.com

