Product Specification

VIAVI
3920B

Analog and Digital Radio Test Platform

VIAVI Solutions

General Specifications

RF Signal Generator	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Output Level	
Range	T/R Port: -130.0 to -30 dBm (-30 dBm max for CW or FM; -35 dBm max for AM modulations; -40 dBm max for complex modulation) GEN Port: -130.0 dBm to +10.0 dBm (+10 dBm max for CW or FM; +5 dBm max for AM modulations; 0 dB max for complex modulation)
Resolution	0.1 dB
Accuracy	1.0 dB for levels >-110 dBm (Typical better than 0.6 dB) 1.5 dB for levels <-110 dBm (Typical better than 1.0 dB)
Spectral Purity	
Residual FM	<5 Hz (300 Hz to 3 kHz bandwidth)
Residual AM	<0.1% RMS (300 Hz to 3 kHz bandwidth)
Harmonics	<-25 dBc (Typically -30 dBc, RF level set at +10 dBm)
Non-Harmonics	<-55 dBc (all freq. except Crossovers) <-35 dBc (at 2nd order crossover frequency) (10 MHz to 1 GHz: Crossover = 1400 MHz - Gen freq.) (1 GHz to 2.7 GHz: Crossover = 3400 MHz - Gen freq.) (Tracking Gen: Crossover = 3410.7 MHz - Gen freq.)
Phase Noise	<-110 dBc / Hz @ 10 kHz offset, RF <500 MHz <-106 dBc / Hz @ 10 kHz ofset, RF <1000 MHz <-95 dBc / Hz @ 10 kHz offset, RF >1000 MHz
Modulation	
Selections	OFF, AM, FM, FM50µs, FM75µs, FM750µs, AM USB, AM LSB, IQGEN
Waveforms	Sine, Square, Triangle, Ramp, DCS, DTMF
THD	<1% (1 kHz rate, 30 to 70% AM, 6 kHz deviation FM, 300 Hz to 3 kHz BW, Sine)
Internal FM	
Deviation Range	±0.001 to ±150 kHz, OFF
Accuracy	3% (From ±1 kHz to ±100 kHz deviation, 20 Hz to 15 kHz rate)
Resolution	1 Hz
Deviation Rate	20 Hz to 20 kHz
Internal AM	
Modulation Range	0 to 100%
Accuracy	1% (Modulation from 10% to 90% 20 Hz to 15 kHz rate)
Resolution	0.1%
Rate	20 Hz to 20 kHz
Internal SSB	
Modulation Selection	Upper SideBand (USB) or Lower SideBand (LSB)
Modulation Range	0 to 100%
Resolution	0.1%
Rate	300 Hz to 20 kHz
External AM / FM / SSB	
Audio Inputs	With 1 Vrms, AM / FM / SSB have same characteristics as internal sources, ±10% of indicated setting. (Audio 1 or Audio 2 input from 20 Hz to 15 kHz [300 Hz to 3 kHz SSB] unbalanced). 8 Vrms maximum modulation input level.
Microphone Input	With 50 mVrms, AM / FM / SSB have same characteristics as internal sources, ±10% of indicated setting. (MIC Input from 100 Hz to 15 kHz [300 Hz to 3 kHz SSB]).
Internal IQ Gen	
Sample Rate	<1.89 Msamples / sec
Size	<3.8 million samples
Source	File created by IQCreator

Официальный представитель в России
CDIP
www.cdip.ru
Тел: +7 (495) 956-20-22
E-mail: info@cdip.ru

RF Receiver	
RF Receiver	
Demod Selections	AM, FM, FM50µs, FM75µs, FM750µs, AM USB, AM LSB
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Sensitivity	<-100 dBm (10 dB SINAD, FM, 25 kHz, 1 kHz rate, 6 kHz FM Deviation, 300 Hz to 3.4 kHz AF Filter, Pre-amp OFF) <-113 dBm (10 dB SINAD, FM, 25 kHz, 1 kHz rate, 6 kHz FM Deviation, 300 Hz to 3.4 kHz AF Filter, Pre-amp ON)
Demod Output Level	
FM	Nominally 1 Vrms (for deviation ±1/4 of selected BW; 25 kHz BW same output level as 30 kHz BW)
AM	Nominally 2 Vrms (100% AM)
RF Measurements	
RF Power Meter (Broadband)	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 2 MHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 2 MHz)
Level Range	100 mW to 125 W (Usable from 10 mW)
Resolution	4 digits for W or 0.1 dB
Accuracy	10%, 1 digit
Signal	CW, FM, C4FM, 4FSK
RF Power Meter (Inband)	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (Freq Ext Opt) (Usable from 100 kHz)
Level Range	T/R Port: -60 to +51 dBm Lowest reading is receiver BW dependent (Narrower bandwidths can measure lower levels) ANT Port: -100 to +10 dBm Lowest reading is receiver BW dependent (Narrower bandwidths can measure lower levels)
Resolution	0.1 dB
Accuracy	±1 dB (Input level above minimum for selected BW [display not yellow], typically better than 0.6 dB)
AM Filter BW	6.25, 8.33, 10, 12.5, 25, and 30 kHz
FM Filter BW	6.25, 10, 12.5, 25, 30, 100, and 300 kHz
Signal	CW, FM, AM, C4FM, 4FSK, OPSK, QAM
RF Counter	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz, Auto-tune) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz, Auto-tune)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Level Range for Auto-tune	T/R Port: -10 to +50 dBm (Find level is selectable) ANT Port: -60 to +10 dBm (Find level is selectable)
Signal	CW, FM, AM <70% modulation

RF Error Meter	
Range	0 to ±2.5 MHz from receiver frequency (6 MHz IF BW)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Level Range	T/R Port: -10 to +50 dBm ANT Port: -60 to +10 dBm
Signal	CW, FM, AM <70% modulation
Demodulation Measurements	
RF Characteristics	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Input RF Level	T/R Port: -10 to +50 dBm ANT Port: -80 to +10 dBm
Demod Counter	
Range	20 Hz to 20 kHz (1 to 100 kHz FM Deviation, IF BW set appropriately for the received modulation BW) 20 Hz to 10 kHz (30 to 90% AM, IF BW set appropriately for the received modulation BW)
Resolution	0.1 Hz
Accuracy	±50 ppm (±10 ppm typical)
Waveform	Sine or Square
FM Deviation Meter	
Range	0 to 150 kHz
Resolution	10 Hz
Accuracy	±3% plus source residual, ±1 count (1 to 150 kHz FM deviation, IF BW set appropriately for the received modulation BW)
Filter Characteristic Response	0.01 dB (15 kHz low pass audio filter) above 20 Hz
Meter Flatness	0 dB
FM Rate	20 Hz to 20 kHz (IF BW set appropriately for the received modulation BW)
AM Deviation Meter	
Range	0 to 100%
Resolution	0.1%
Accuracy	±3% + source residual, ±1 count (30 to 90% AM, IF BW set appropriately for the received modulation BW)
AM Rate	20 Hz to 15 kHz (IF BW set appropriately for the received modulation BW)
Audio and Modulation Measurements	
Audio Input Characteristics for the following meters	AF Counter, AF Level Meter, SINAD Meter, Distortion Meter, Hum and Noise Meter, Signal-to-Noise Meter
Front Panel Audio Inputs	Audio 1 or Audio 2 (unbalanced, chassis reference) Audio 1 and Audio 2 (balanced, 600 Ω differential input)
Audio Input Impedance (Audio 1 and 2)	Hi-Z (>10 kΩ) - Unbalanced input 600 Ω - Unbalanced Input (8 Vrms MAX input)* 600 Ω - Balanced input (Audio 1 and 2) ***Note – 600 Ω unbalanced will auto-switch to Hi-Z @ 8 Vrms**

AF Counter	
Range	20 Hz to 20 kHz (usable from 10 Hz)
Resolution	0.1 Hz
Accuracy	±50 ppm max. ±10 ppm typical
Wave shape	Sine or square
Level Range (Audio)	20 mV to 30 Vrms
AF Level Meter	
Range	0 to 30 Vrms
Resolution	Volts: 1 mV (input <1 V) 10 mV (input >1 V) dBr, dBv, dBm: 0.01 dB
Accuracy	5% (Unbalanced, Hi-Z, 300 to 3 kHz, 0.1 to 30 Vrms)
Frequency Range	20 Hz to 20 kHz
SINAD Meter	
Range	0 to 60 dB
Resolution	0.01 dB
Accuracy	±1 dB, ±1 count (SINAD >3 dB, <40 dB, 5 kHz LP AF filter)
Frequency Range	300 Hz to 5 kHz
Level Range (Audio)	0.1 to 30 Vrms
Distortion Meter	
Range	0.0 to 100.0%
Resolution	0.1%
Accuracy	<±0.5% (Distortion 1 to 10%, 5 kHz LP AF Filter) <±1.0% (Distortion 10 to 20%, 5 kHz LP AF Filter)
Frequency Range	300 Hz to 5 kHz
Level Range (Audio)	0.1 to 30 Vrms
Hum and Noise	
Range	-100 dB to 0 dB
Resolution	0.01 dB
Accuracy	±1 dB, ±1 count (>-60 dB, <-20 dB)
Signal Frequency	300 Hz to 5 kHz
Audio Input Level	0.1 to 30 Vrms
RF Intput Level	T/R Port: -10 to +50 dBm ANT Port: -80 to +10 dBm
Signal-to-Noise Ratio	
Range	-100 to 0 dB
Resolution	0.01 dB
Accuracy	±1 dB, ±1 count (>-60 dB, <-20 dB)
Signal Frequency	300 Hz to 5 kHz
Audio Input Level	0.1 to 30 Vrms
RF Input Level	T/R Port: -10 to +50 dBm ANT Port: -80 to +10 dBm

Modes				
Mode	Stimulus	Stimulus Port	Measure-ment Input	Measure-ment Port
1	RF Generator	TR / Gen	AF Input	Audio In 1 or 2
2	AF Generator	Fctn Gen Out	RF Receiver	TR / Antenna
Audio Filters (Characteristic Response)				
Filter	Type	Ripple	-1 dB	-60 dB
None	No Filter			
300 Hz	Low-Pass	<0.23 dB, above 20 Hz	330 Hz	590 Hz
5 kHz	Low-Pass	<0.02 dB, above 20 Hz	5.5 kHz	6.7 kHz
15 kHz	Low-Pass	<0.01 dB, above 20 Hz	16.1 kHz	17.8 kHz
20 kHz	Low-Pass	<0.01 dB, above 20 Hz	20.4 kHz	21 kHz
0.3 to 3.4 kHz	Band-Pass	<1.7 dB	320 Hz / 3.8 kHz	60 Hz / 5.2 kHz
0.3 to 5 kHz	Band-Pass	<1.7 dB	320 Hz / 5.2 kHz	60 Hz / 9.6 kHz
0.3 to 15 kHz	Band-Pass	<1.7 dB	320 Hz / 16.1 kHz	60 Hz / 19.9 kHz
0.3 to 20 kHz	Band-Pass	<1.7 dB	200 Hz / 20.4 kHz	60 Hz / 21 kHz
PSOPH C-MSG	Band-Pass	Per C-MSG Spec	Per C-MSG Spec	Per C-MSG Spec
PSOPH CCITT	Band-Pass	Per CCITT Spec	Per CCITT Spec	Per CCITT Spec
300 Hz	High-Pass	<1.7 dB	320 Hz	60 Hz

Audio Function Generator(s)	
Wave Shape	Sine, Square, Triangle, Ramp, Digital Coded Squelch, DTMF
Frequency	
Range	Sine: 20 Hz to 40 kHz (usable from 1 Hz to 40 kHz) Square, Triangle and Ramp: 20 Hz to 4 kHz (usable 1 Hz to 40 kHz)
Resolution	0.1 Hz
Accuracy	±50 ppm, ±10 ppm typical
Level	
Range	1 mV to 5 V RMS into a 10 kΩ load
Resolution	0.1 mV
Accuracy	±1% of setting (10 kΩ load)
Impedance	<10 Ω
Spectral Purity	<0.5% (1 kHz, 5 Vrms, 80 kHz BW, 10 kΩ load, Sine) <1.0% (Typical, 20 Hz to 20 kHz, 100 mV to 5 Vrms, 80 kHz BW, 10 kΩ load, Sine)

Oscilloscope	
Display	
Traces	2
Trace Types	Live, captured, accumulated
Markers	2
Marker Functions	Time with amplitude, deviation or % depth Delta marker (including 1/Δ t, e.g. Hz)
Vertical	
3 dB Bandwidth	16 MHz
Frequency Range	DC to 4 MHz (40 MS / s sampling rate)
Input Range	0 to 100 Vpeak Max, Category II
Scales	2 mV to 20 V / division in a 1, 2, 5 sequence (8 [h] x 10 [w] graticule display)
Accuracy	5% of full scale (DC to 1 MHz) 10% of full scale (1 to 4 MHz)
Resolution	Better than 1% of full scale
Coupling	DC, AC, GND
Horizontal	
Sweep Factors	1 µSec to 1 Sec / division in a 1, 2, 5 sequence
Accuracy	>1.5% of full scale
Resolution	>1% of full scale
Input Impedance	1 MΩ, 20 pF
Trigger	
Trigger Source	Trace A, Trace B, EXT, (or Trace C with no CH1 or CH2 Input)
Trigger Edge	Rising / falling
Trigger Mode	Auto / normal Continuous / single shot
External Trigger Level	Hi-Z BNC input on the rear panel of the unit Adjustable from -5 to +5 V

Digital Multimeter	
AC / DC Voltmeter	
Full Scale Range	200 mV, 2 V, 20 V, 200 V, 2000 V, Auto (150 VAC RMS or VDC MAX input Category II)
Resolution	3-½ digits (2000 counts)
Accuracy	DC ±1% Full Scale ±1 count AC ±5% Full Scale ±1 count
AC Volts Frequency Range	50 Hz to 10 kHz
AC / DC Ammeter	
Full Scale Range	200 mA, 2 A, 20 A, Auto (20 A range uses optional shunt connected to Voltmeter)
Maximum Open Circuit Input Voltage	30 Vrms referenced to common on earth ground, Category I
Resolution	3-½ digits (2000 counts)
Accuracy	±5% Full Scale ±1 count
AC Volts Frequency Range	50 Hz to 10 kHz
Ohmeter	
Full Scale Range	200 ohms, 2 kohms, 20 kohms, 200 kohms, 2 Mohms, 20 Mohms, Auto
Maximum Open Circuit Input Voltage	30 Vrms referenced to common or earth ground, Category I
Resolution	3-½ digits (2000 counts)
Accuracy	±5% Full Scale ±1 count
External Current Shunt (Optional)	
Rating (Category II)	10 amps, 100 mV 20 amps - ON 1 minute, OFF 4 minutes
Accuracy (18° to 28° C)	DC to 10 kHz: ±0.25%
Temperature Coefficient	0.005% / ° C

RF Spectrum Analyzer	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392xOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Accuracy	Same as frequency standard
Span	
Mode	Start / Stop, Center / Span, and Zero Span
Range	Selection list is 2 kHz to Full Span in a 1, 2, 5 sequence, plus Zero Span (Span may be entered numerically down to 1 Hz resolution)
Display Accuracy	Span Accuracy + Frequency Accuracy + 50% of RBW
Span Accuracy	±1% of span width
Marker Accuracy	±1% of span width
Level	
Ref Level Range	T/R Port: -50 to +50 dBm ANT Port: -90 to +10 dBm
Vertical Scales	1, 2, 5, 10 dB / division
Reference Level Resolution	0.1 dB
Ref Level Units	dBm
Dynamic Range	70 dB (Antenna, no attenuation, Ref Level -30 dBm, 30 kHz RBW)
Bandwidth Switching Error	±1 dB (After Normalize)
Log Linearity	±1 dB (RBW: 3 kHz, 30 kHz, 60 kHz, 300 kHz, 6 MHz) ±1 dB (300 Hz RBW typical)
Accuracy	±1 dB (Input signal -10 dB from Ref Level, Normalized, preamp off)
Attenuator Selections	0 to 50 dB of attenuation, controlled by changing the Ref Level
3rd Order Intermod-ulation	-60 dBc (Input Level of -30 dBm, Ref Level at -20 dBm)
Harmonic Spurious	-55 dBc (Input Level of -30 dBm, Ref Level at -20 dBm)

Level - Continued	
Non-Harmonic Spurious	-60 dBc (Input Level of -30 dBm, Ref Level at -20 dBm)
Displayed Average Noise Level (DANL)	-125 dBm (Typical, 300 Hz RBW, ANT Port terminated, 20 sweep average)
Resolution Bandwidth	
RBW Selections	300 Hz, 3 kHz, 30 kHz, 60 kHz, 300 kHz, 6 MHz
RBW 60 dB / 3 Filter Shape	>10:1
Selectivity - Filter Shape	60 dB / 3 dB ratio better than 10:1
Accuracy	±10% of RBW for 3 kHz, 30 kHz, 60 kHz, 300 kHz -10% / +25% of RBW for 6 MHz ±20% of RBW for 300 Hz
Bandwidth Switching Error	±1 dB
Video Bandwidth	
Range	10 Hz to 1 MHz in a 1, 3, 10 sequence, plus NONE
Sweep	
Frequency Sweep Time	100 mS to 100 S in a 1, 2, 5 sequence
Zero Span Sweep Time	50 mS to 100 S in a 1, 2, 5 sequence
Sweep Trigger Source	Internal and External
Trigger Modes	Continuous (repeat), single (single-shot)
Function / Feature	
Display Modes	Live, average, max hold
Averages	1 to 100
Markers	
Track	Frequencies (or time) and amplitudes
Number of Markers	8
Marker Functions	Marker to Peak Marker to Next Right / Left Marker to Minimum Marker to Ref Level Marker to Center Frequency Marker sets Span Marker sets Vertical Scale (Zero Span only)
Tracking Generator (Optional)	
Tracking Generator Output	Refer to RF Signal Generator section for: -Frequency range and accuracy -Output level range, resolution, and accuracy - Spectral purity
Span and Sweep Time	Same as Spectrum Analyzer
Tracking Generator Controls	Output port selection, RF level, Reference cal
Harmonics and Spurious (Optional)	
Harmonic Level	
Range	0 to -60 dBc
Resolution	0.1
Accuracy	Same as RF Spectrum Analyzer

Spurious Level	
Range	0 to -60 dBc
Resolution	0.1
Accuracy	Same as RF Spectrum Analyzer
Audio Spectrum Analyzer (Optional)	
Frequency	
Range	Start and Stop Frequency - 0 Hz to 24,000 Hz
Resolution	1 Hz
Accuracy	±50 ppm (±10 ppm Typical)
Span	2 kHz min to 24 kHz max
Level	
Vertical Scales	1, 2, 5, 10, 20 dB per division
Reference Level	0 dB Full Scale (dBr)
Dynamic Range	Greater than 120 dB
Accuracy	±1 dB from 300 Hz to 15 kHz
Markers	
Number of Markers	2
Frequency Standard I/O	
Internal Frequency Standard Output	
Frequency	10 MHz (nominal)
Output Level	1 Vpp (nominal) into 50 Ω
Temperature Stability (0 to 50° C)	±0.01 ppm
Aging Rate	±0.1 ppm / year after 1 month continuous use
Warm Up Time	Less than 5 min. to ±0.02 ppm
External Frequency Input	
Frequency	10 MHz
Input Level	1 to 5 Vpp for sine waves 3.3 / 5 V TTL for square waves
Connector	BNC socket (10 kΩ Input / 50 Ω Output)
Input / Output Connectors	
ANT (RF Input)	
Connector Type	TNC
Function	Receiver input
Impedance	50 Ω (nominal)
VSWR (with Attenuation <10 dB)	Better than 1.44:1 (RF freq. <1.05 GHz) Better than 1.58:1 (RF freq. >1.05 GHz to <2.7 GHz)
Input Protection	10 W with warning above +17 dBm (Remove power immediately when alarm sounds)
Gen (RF Output)	
Connector Type	TNC
Function	Generator high-level output
Impedance	50 Ω (nominal)
VSWR (with level <0 dBm)	Better than 1.7:1 (RF freq. <1.05 GHz) Better than 1.9:1 (RF freq. >1.05 GHz to <2.7 GHz)
Input Protection	10 W with warning above +23 dBm (Remove power immediately when alarm sounds)

T/R (RF Input / Output)	
Connector Type	Type N
Function	RF power input, generator low-level output
Impedance	50 Ω (nominal)
VSWR	Better than 1.2:1 (RF freq. <1.05 GHz) Better than 1.3:1 (RF freq. >1.05 GHz to <2.7 GHz)
Input Protection	200 W with warning above 135 W or power termination temp >100° C. Recommended max of 30 s ON and minimum of 2 min OFF for power levels above 50 W. (Remove power immediately when alarm sounds)
GPIB	
Connector Type	24 pin IEEE
Function	IEEE-488, 1-1997
Ethernet	
Connector Type	8 position, RF-45 100 / 10 Mbit / s
Function	10 / 100 Base-T network connection
RS-232	
Connector Type	9-pin, D-sub, Male
Baud Rates	300, 600, 1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, 115.2k
Stop Bits	1 or 2
Parity	Odd, even, none
Video	
Connector Type	15-pin, D-sub, VGA
Function	VGA for external monitor
IF Output	
Connector Type	BNC
Function	10.7 MHz Receiver IF
Output Level	Proportional to Receive Signal Level
Mic / Accessory	
Connector Type	8 position, female DIN
Function	Microphone connection, modulation input, demod output, PTT operation
Parallel Port	
Connector Type	25 position, female D-sub
Function	Printer interface
USB	
Connector Type	Twin USB standard connection (rear panel) Single USB standard connection (front panel)
Function	IEEE-488, 1-1997
Test Port	
Connector Type	15 position, female 3 tier D-sub
Function	Programmable I/O and voltage output (optional interface)
Auxiliary IF Input	
Connector Type	High-density dual inline
Function	External digital receiver input (optional interface)
AC Power Requirements	
Mains Supply Voltage	110 V to 220 VAC ±10%
Mains Supply Frequency	50 Hz to 60 Hz ±5%
Power Consumption	Nominally 120 W (200 W Max)
Fuse Requirements	3 A, 250 V, Type F
General Characteristics	
LCD Display Screen Size	6.4" diagonal 162.6 mm diagonal
Active Area	5.1" (h) x 3.8" (v) 129.6 mm (h) x 97.44 mm (v)
Resolution	640 x 480 pixels
Disk Storage	Internal 30 GByte hard disk available for user storage

P25 (Optional System)

RF Signal Generator	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Output Level	
Range	T/R Port: -138.0 to -30.0 dBm for C4FM and H-CPM modulations (-40.0 for all other modulations) GEN Port: -130.0 to +10.0 dBm for C4FM and H-CPM modulations (+0.0 dBm for all other modulations)
Resolution	0.1 dB
Accuracy	1.0 dB for levels >-110 dBm (Typical better than 0.6 dB) 1.5 dB for levels <-110 (Typical better than ±1.0 dB)
Modulation	C4FM, CQPSK, LSM
Test Patterns	STD 1011, STD CAL, STD SILENCE, STD INTFR, STD BUSY, STD IDLE, STD 511 (0.153), STORED SPCH, VOICE, 1011, SILENCE
RF Receiver	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Level Range	T/R Port: -10 to +50 dBm ANT Port: -60.0 to +10 dBm (with preamp -63)
P25 Measurements	
Modulation Fidelity	
Range	0 to 20%
Resolution	0.1%
Accuracy	<5.0% of reading (2.5 to 10%)
Symbol Deviation	
Range	1500 Hz to 2100 Hz

Resolution	0.1 Hz
Accuracy	±10 Hz (1620 to 1980 Hz)
Symbol Clock Error	
Range	±100 mHz
Resolution	0.01 mHz
Accuracy	1 ppm (±4.8 mHz)
Frequency Error	
Range	±4000 Hz
Resolution	0.01 Hz
Accuracy	Frequency Standard ±1 count
UUT TX / RX Bit Error Rate	
Range	0 to 20%
Resolution	0.1%
Signal Power	
Range	T/R Port: -60 to +51 dBm ANT Port: -100 to +10 dBm
Resolution	0.1 dB
Accuracy	±1 dB (typically better than ±0.6 dB)
Error Vector Magnitude	
Range	0 to 20%
Resolution	0.01%
Carrier Feedthrough	
Range	0 to -80.00 dB
Resolution	0.01 dB
Graphical Displays	
Modulation Fidelity Displays	
Constellation	Line graph of the deviation at the symbol point.
Distribution	Graph of the statistical distribution of the deviation at the symbol point. This is a graph of the deviation at the symbol point versus the percentage of occurrence of that deviation.
Eye Diagram	Graph of the demodulated signal versus time, synchronized with the symbol points. The number of symbol periods is selectable. Range is 2 to 16.
Trajectory	Graph of the demodulated signal in the complex domain. This graph shows the Inphase versus the Quadrature phase of the demodulated C4FM, CQPSK, or LSM signal.
Protocol	
Data Link	
Header	MFID, ALG, KEY, TGID, MI
Voice Frame	Frame #, NAC, DUID, KEY, ALG, MI, RAW, LCO, Protect, SF, EMG, LSD, STS, STS 2
Conventional Mode Simulation	NAC, Call Type, TGID, UID, Alg ID, Key ID
Phase I Trunking Simulation	
System Plans	Basic 800, Basic UHF, Basic VHF, Basic 700, plus multiple user defined
User Defined Fields	System ID, WACN, RFSS ID, Site ID, Announcement Group Address, Local Registration Area, Service Class, Active Network, Local / Global Affiliation, Group Affiliation, Registration, WGID Mapping, WUID mapping, Protected 16 Channel IDs with Base Frequency, Bandwidth, TX Offset, Channel Spacing
Trunking Control	Base Simulation sets System Plan, Implicit / Explicit mode, Control Channel ID / NUM / Frequency, Control Channel power level, Control Channel modulation, Traffic Channel ID / NUM / Frequency, Traffic Channel power level, Traffic Channel modulation
Simulator	Call Type, TGID, UID, Alg ID, Key ID
Encryption	Supports DES Encryption (AES available with restrictions)

DMR (Optional System)

RF Signal Generator	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Output Level	
Range	T/R Port: -130.0 to -40.0 dBm GEN Port: -130.0 to +0.0 dBm
Resolution	0.1 dB
Accuracy	1.0 dB for levels >-110 dBm (Typical better than 0.6 dB) 1.5 dB for levels <-110 (Typical better than 1.0 db)
Modulation	4-FSK
Test Patterns	STD IB 1031, STD IB CAL, STD IB 511 (0.153), STD OB TSYNC (Repeater IDLE pattern)
RF Receiver	
Frequency Range	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Level Range	T/R Port: -10 to +50 dBm ANT Port: -60.0 to +10 dBm (with preamp -63)
DMR Measurements	
FSK Error	
Range	0 to 20%
Resolution	0.01%
Accuracy	<5% of reading (2.5 to 10%)
Symbol Deviation	
Range	1500 Hz to 2350 Hz
Resolution	0.1 Hz
Accuracy	±10 Hz (1745 to 2140 Hz)

Symbol Clock Error	
Range	±1000 mHz
Resolution	0.01 mHz
Accuracy	1 ppm (-48 to +48 mHz)
Frequency Error	
Range	±4000 Hz
Resolution	0.01 Hz
Accuracy	Frequency Standard ±1 count
Magnitude Error	
Range	0 to 5%
Resolution	0.01%
Accuracy	<10% of reading (0 to 2%)
UUT TX / RX Bit Error Rate	
Range	0 to 20%
Resolution	0.1%
Signal Power / Slot Power	
Range	T/R Port: -60 to +51 dBm ANT Port: -100 to +10 dBm
Resolution	0.1 dB
Accuracy	±1 dB (typically better than ±0.6 dB)
Protocol	
Decode	Color Code, Call ID, Unit ID
Accuracy	Color Code, Call ID

dPMR (Optional System)

RF Signal Generator	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Accuracy	Frequency standard ±1 count
Output Level	
Range	T/R Port: -138.0 to -30.0 dBm for 4FSK GEN Port: -130.0 to +10.0 dBm for 4FSK
Resolution	0.1 dB
Accuracy	1.0 dB for levels >-110 dBm (Typical better than 0.6 dB) 1.5 dB for levels <-110 (Typical better than 1.0 dB)
Modulation	4FSK
Test Patterns	STD 511 (0.153)
RF Receiver	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1 Hz
Level Range	T/R Port: -10 to +50 dBm ANT Port: -60.0 to +10 dBm (with preamp -63)

dPMR Measurements	
FSK Error	
Range	0 to 20%
Resolution	0.01%
Accuracy	<5.0% of reading (2.5 to 10%)
Symbol Deviation Meter	
Range	875 Hz to 1225 Hz
Resolution	0.1 Hz
Accuracy	±10 Hz (945 to 1155 Hz)
Symbol Clock Error Meter	
Range	±1000 mHz
Resolution	0.01 mHz
Accuracy	1 ppm (-24 to +24 mHz)
Frequency Error	
Range	±4000 Hz
Resolution	0.01 Hz
Accuracy	Frequency Standard ±1 count
UUT TX BER Meter	
Range	0 to 20%
Resolution	0.1%
Signal Power Meter	
Range	T/R Port: -60 to +51 dBm ANT Port: -100 to +10 dBm
Resolution	0.1 dB
Accuracy	±1 dB (±0.6 dB typical)
Graphical Displays	
Modulation & Power Analysis	
Constellation	Line graph of the deviation at the symbol point.
Distribution	Graph of the statisitcal distribution of the deviation at the symbol point. This is a graph of the deviation at the symbol point versus the percentage of occurrence of that deviation.
Eye Diagram	Graph of the demodulated signal versus time, synchronized with the symbol points. The number of symbol periods is selectable. Range is 2 to 16.
Power Over Time	Displays the power measurement of the received signal over a specified period of time; indicating the transmitter's stability

TETRA (Optional System)

RF Signal Generator	
Frequency	
Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Resolution	1.0 Hz
Accuracy	Frequency Standard ±1 count

Output Level	
Range	T/R Port: -130.0 to -40.0 dBm GEN Port: -130.0 to 0 dBm
Resolution	0.1 dB
Accuracy	1.0 dB for levels >-110 dBm (Typical better than 0.6 dB) 1.5 dB for levels <-110 (Typical better than 1.0 dB)
Modulation	
Type	π/4 DQPSK, 18 ksymbols / sec, TETRA filter (RRC with <0.35)
Accuracy	<3% RMS <6% peak
Residual Carrier Power	<-35 dBc
Test Signals	
TETRA MS	Main Control Channel (MCCH) Traffic Channel (TCH / S) containing silence or 1 kHz tone or talk-back, Fast Associated Control Channel (FACCH)
TETRA MS T1	T1 test signals (in accordance with ETSI EN 300 394-1) T1 type 7 (TCH / 7.2), T1 type 2 (SCH / F), T1 type 3 (BSCH + SCH / HD), T1 type 4 (TCH / 2.4), T1 type 15 (TCH / S), T1 type 17 (TCH / 4.8)
TETRA BS T1	T1 test signals (in accordance with ETSI EN 300 394-1) T1 type 7 (TCH / 7.2), T1 type 8 (SCH / F), T1 type 9 (STCH + STCH UL), T1 type 10 (TCH / 2.4), 18 Frame PRBS. Framed PRBS, Unframed PRBS
TETRA DM	Traffic Channel (TCH / S) containing silence or 1 kHz tone or talk-back
RF Receiver	
Frequency Range	10 MHz to 1.05 GHz (Standard) (Usable from 100 kHz) 10 MHz to 2.7 GHz (392XOPT058) (Usable from 100 kHz)
Level Range	T/R Port: -40 dBm to +40 dBm ANT Port: -80 dBm to 0 dBm
Burst Types	MS: Control Burst (CB), Normal Uplink Burst (NUB) BS: Normal Downlink Burst (TS1+2, TS1, and TS2) Synchronization Burst, PRBS with no training sequence
TETRA Measurements	
POWER	Average power across the useful part of the burst measured at the symbol points through a TETRA filter
Resolution	0.1 dB
Accuracy	±1.0 dB (±0.6 dB typical)
MODULATION ACCURACY	Modulation accuracy measures the displacement of symbol points from their ideal position
Range	20.0% RMS vector error 40.0% Peak vector error 20.0% Residual carrier
Resolution	0.1%
Accuracy	±0.5% at 10% error
BURST TIMING ERROR	Timing error relative to downlink results available for avg max, min and worst case for a sample of up to 250 bursts
Range	±510.0 symbols
Resolution	0.01
Accuracy	±0.05 symbols
Timing offset range	±999.99 symbols
Frequency Error	
Range	±500.0 Hz
Resolution	0.1 Hz
Accuracy	±15 Hz +frequency standard accuracy
BER Testing (TETRA MS T1 mode)	BER, MER, and PUEM
BER Testing (TETRA MS mode)	BER, RBER, and MER
BER Testing (TETRA BS T1 mode)	BER, MER, and PUEM
Graphical Displays	
Modulation & Power Analysis	
Constellation	Line graph of the deviation at the symbol point.
Distribution	Graph of the statisitcal distribution of the deviation at the symbol point. This is a graph of the deviation at the symbol point versus the percentage of occurrence of that deviation.
Eye Diagram	Graph of the demodulated signal versus time, synchronized with the symbol points. The number of symbol periods is selectable. Range is 2 to 16.
Power Over Time	Displays the power measurement of the received signal over a specified period of time; indicating the transmitter's stability
Graphical Displays	
POWER PROFILE DISPLAY	Display of power versus time for a complete burst or ramp up / ramp down intervals measured at the symbol points and displayed relative to a TETRA mask (TETRA limits are user defined) with pass / fail indication. Measured through a TETRA filter referenced (0 dB) to average power.
Dynamic Range	70 dB
Vertical Scale	2 dB / div or 0.1 dB / div in 1, 2, 5 steps
Accuracy	±1.0 dB (±0.6 dB typical) at symbol points for levels greater than -10 dB
CONSTELLATION DISPLAY	Polar display of amplitude versus phase at the symbol point measured over all symbols (SN0 ~ SN max) through a TETRA filter. Also available as a rotated constellation display where all symbol point values are mapped to a single constellation point.
PHASE TRAJECTORY DISPLAY	Polar display of amplitude versus phase continuously measured over the duration (SN0 ~ SN max) through a TETRA filter.

Graphical Displays - Continued	
VECTOR ANALYSIS DISPLAY	Vector error (%), magnitude error (%), and phase error (degrees) measured at symbol points (SN0 ~ SN max) through a TETRA filter.
Vertical Scaling	Vector error 0.1% / div to 20% / div in 1, 2, 5 steps Phase error ±0.1° / div to ±20° / div in 1, 2, 5 steps Magnitude error ±1.0% / div to ±20% / div in 1, 2, 5 steps
TETRA Channel Plans and Signaling	
Channel Plans	TETRA 380-400 (0 Hz or 12.5 kHz offset) TETRA 410-430 (0 Hz, 6.25 kHz, or 12.5 kHz offset) TETRA 450-470 (0 Hz or 12.5 kHz offset) TETRA 805-870 (0 Hz or 12.5 kHz offset) TETRA 870-921 (0 Hz or 12.5 kHz offset) No plan and user defined
System Identify	Mobile County Code, MCC Mobile Network Code, MNC Base Color Code, BCC Location Area Code, LA
Signaling Functions	Mobile parameter control for SSI, GSSI, power class, receiver class Registration, test mode registration and de-registration Private (individual) call, group call, phone call, emergency call, user defined call (mobile terminated) Call timer and trunking type selection Cell re-selection (requires two test sets and a power splitter) Short data service Status message and SDS types 1 to 4 call control (simplex calls) Power control and Frequency control Frequency handoff RF loopback control (TT) Display of mobile information Demodulated and channel decoded data Protocol history display Talk back, silence and test tone (1 kHz digitally encoded)

VIAVI Solutions

Официальный представитель в России
CDIP
www.cdip.ru
Тел: +7 (495) 956-20-22
E-mail: info@cdip.ru