

RADIO CHANNEL EMULATOR



Captronic Systems Pvt. Ltd has developed most scalable channel emulation solution using industry recognized modular approach which is very easy to set up and operate, with a user-friendly graphical control interface that allows measurements to be set up and performed quickly and accurately, without error the system enables the test and evaluation of a broad range of applications to simulate many Channel parameters with sophisticated algorithms and software.

CAPture Emulator product series is an advanced test and measurement system that accurately simulates the complex effects of signal fading on wireless transmissions. Its cutting-edge capabilities enable users to emulate a real-world RF environment in the lab, making it possible to isolate and identify performance issues early in the development cycle.



Channel Emulator



Satellite Link Emulator



Troposcatter Simulator



AWGN Generator



VLF Noise Generator

SIMULATION AND TESTING

RADIO CHANNEL EMULATOR SPECIFICATIONS

Sl. No.	Parameter	Specifications
1	No. of RF Ports	<ul style="list-style-type: none"> 16 Tx/Rx Bidirectional Ports 16 Tx Unidirectional Ports
2	MIMO Emulation	Up to 8x8 (both in TDD and FDD Modes)
3	Crosstalk between TRX ports	< -80 dB
4	MANET feature	Manet network topologies/Links using up to 16 Radios/Nodes
5	RF Connectors	SMA

RADIO CHANNEL EMULATOR SPECIFICATIONS

Sl. No.	Parameter	Specifications
6	RF Input Level	-30 to +10 dBm
7	RF Output Level	-95 to -10dBm
8	RF input damage level	+30dBm Peak
9	RF Interface Channel signal instantaneous Signal Bandwidth per each RF Port	Min.150MHz
10	RF Interface Channel Frequency Range	30MHz to 5.5GHz
11	VSWR	< 2.0
12	Programmable and synchronous Interference sources	AWGN with C/N -20dB to +40dB
13	MESH feature	Up to 16 Nodes in full Mesh with instantaneous Bandwidth of Min. 80MHz
14	RF Output Level Resolution	Min. 1 dB
15	Number of fading paths per fading Channel	Min. 16 fading paths per fading channel In case of 16 full Mesh topology , Min. 5 fading pathsper fading channel
16	Number of fading channels	Min. 240 fading digital channels
17	Output noise floor across frequency band	<-140 dB/Hz at output level of ≤-45dBm
18	EVM across output levels	< -35 dB RMS for QAM-256
19	Operating Temperature	0°C to +55°C
20	fading profiles	<ul style="list-style-type: none"> • Constant • Rayleigh • Rice • user-defined • 3GPP (TDL-Time Delay Line) • High Speed Train Test • Each digital fading channel should have independent delay • setting
21	Geometric channel modelling tool (GCM)	Intuitive and fast mobile radio scenario creation feature based on 3GPP CDL(Cluster Delay Line) model

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Sl. No.	Parameter	Specifications
22	Delay Profiles	<ul style="list-style-type: none"> Lower Limit: 3us or below Upper Limit: 300 us or above Each digital fading channel should have independent delay setting <ul style="list-style-type: none"> Delay Models : Fixed ,Moving Propagation/Sliding Delay, Birth Death Delay
23	Bulk Delay (Round Trip Time)	Min. 250msec
24	TRX Path loss	Min. 60dB
25	Relative/Digital Path loss	Min. 35dB
26	Dynamic Environment Emulation	<ul style="list-style-type: none"> Create predefined scenarios for modifying channel Parameters during a test run Control mechanism for an extensive set of emulation parameters like AWGN, C/N, Power delay profile, Frequency shift, Doppler velocity
27	Equipment Interface	<ul style="list-style-type: none"> LAN Interface USB Display (DP/VGA/HDMI)
28	IQ capture in real time (min. 8 RF ports Simultaneously operating at Max BW of 80 MHz any instant)	<ul style="list-style-type: none"> 1 sec samples/ port Captured format to be MATLAB compatible(.bin/.text/.dat/.mat, etc.,)
29	Doppler Emulation	Min. ± 10 kHz
30	Antenna Array Tool	Antenna array sampling feature like Number of Row and Column elements, Polarization, Beam Pointing Angle, Phase Offset
31	Host Controller	For configuring & controlling Radio Channel Emulator with software

CAPTRONIC SYSTEMS BANGALORE HEADQUARTERS

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