QRC TECHNOLOGIES
a PARSONS company

DCODE PRO

Controller System for Unparalleled
Cellular Network Survey and Characterization

DCode Pro is a Feature Rich Network Analysis and Characterization Software Program Optimized for Data Collection at High Rates of Speed and Rapid Visualization

DCode Pro is a specialized software program that demodulates cellular and wireless signals including 5G, LTE WiMAX, WCDMA, CDMA, EVDO, GSM, Wi-Fi and Bluetooth, depending on the ICS model and optional add-ons. DCode Pro includes onboard analytical tools to assist users with real time processing and utilization of data.

DCode Pro is exclusive to the ICS family of survey and network characterization tools which pairs a feature rich software suite with industry leading radios in the ICS and Q-Fi systems. These tools produce network information at the speed of operations. This pairing of elite radios with the right software creates a tool that provides the operator a complete understanding of the networks.

Each protocol can be activated individually or simultaneously for specialized applications. The operator has the flexibility to set-up any protocol from the Configuration Manager which makes for a more user-friendly package. While scanning and collecting network data on protocols for the area of interest, the User can cycle from band to band at the push of a button or can select specific bands from the interface.

Optimized for multi-protocol, multi-band cellular survey at high rates of speed, DCode Pro is the ideal cellular drive test software. Highlighted features of the DCode Pro software include:

Geofencing is a data file management tool that allows the user to create pre-defined geographic boundaries where the ICS will collect data. It is a must have feature for long range UAS air surveys.

Spectrum Viewer is a single intuitive display that presents a RF spectral display and identifies various cellular modulation types, signals, and interferences.

Rogue Cell Detection will alert the user to the possibility of a rogue cell operating in the survey area. DCode will passively detect these devices and assign a confidence score to each discovery.

Passive Basestation Locator (PBL) provides the geographic positions of cellular sectors from ground or airborne surveys.

Features

- Multi-Protocol, multi-band operations
- Cycle protocols and bands with the push of a button
- Complete decoding of control channel messages
- Self-Configuring
- Active tool configuration
- L3 logging and parsing
- Provider filtering
- Capable of surveying both fixed wireless access (FWA) and mobile access
- Geo-Fencing
- Log File Data Decimation
- Rogue BTS detection
- Base Station location estimation

Configurations

- GSM
- CDMA
- WCDMA
- EVDO
- LTE
- WiMAX
- NB-IoT
- Wi-Fi (with add-on Q-Fi module)
- 5G NR
  - < 6 GHz
  - mmWave (with optional Downconverter)

ISO 9001

This item is subject to the EAR. Accordingly, an export authorization may be required for certain clients, uses, and/or destinations. The time required to obtain an authorization may impact international delivery.

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Current Supported Bands

5G LTE Support

Band	Duplex Mode	Freq (MHz)	Common Name
n1	FDD	2100	IMT
n2	FDD	1900	PCS
n3	FDD	1800	DCS
n5	FDD	850	CLR
n7	FDD	2600	IMT-E
n8	FDD	900	Extended GSM
n12	FDD	700	Lower SMH
n14	FDD	700	Upper SMH
n18	FDD	850	Lower 800 (Japan)
n20	FDD	800	Digital Dividend (EU)
n25	FDD	1900	Extended PCS
n26	FDD	850	Extended CLR
n28	FDD	700	APT
n29	SDL	700	Lower SMH
n30	FDD	2300	WCS
n34	TDD	2100	IMT
n38	TDD	2600	IMT-E
n39	TDD	1900	DCS-IMT Gap
n40	TDD	2300	S-Band
n41	TDD	2500	BRS
n46	TDD	5200	U-NII-1-4
n47	TDD	5900	U-NII-4
n48	TDD	3500	CBRS (US)
n50	TDD	1500	L-Band (EU)
n51	TDD	1500	L-Band Extension (EU)
n65	FDD	2100	Extended IMT
n66	FDD	1700	Extended AWS
n70	FDD	2000	AWS-4
n71	FDD	600	Digital Dividend (US)
n74	FDD	1500	Lower L-Band (US)
n75	SDL	1500	L-Band (EU)
n76	SDL	1500	Extended L-Band (EU)
n77	TDD	3700	C-Band
n78	TDD	3500	C-Band
n79	TDD	4700	C-Band
n80	SUL	1800	DCS
n81	SUL	900	Extended GSM
n82	SUL	800	Digital Dividend (EU)
n83	SUL	700	APT
n84	SUL	2100	IMT
n86	SUL	1700	Extended AWS
n89	SUL	850	CLR
n90	TDD	2500	BRS
n91	FDD	800/1500	DD (EU) / L-Band (EU)
n92	FDD	800/1500	DD (EU) / L-Band (EU)
n93	FDD	900/1500	Extended GSM/ L-Band (EU)
n94	FDD	900/1500	Extended GSM / L-Band (EU)
n95	SUL	2100	IMT
n96	TDD	6000	U-NII-5-9
n257	TDD	28,000	LMDS
n258	TDD	26,000	K-band
n259	TDD	41,000	V-band
n260	TDD	39,000	Ka-band
n261	TDD	28,000	Ka-band

WCDMA (3GPP 25.101 v9.10)

Band Class I –	2100 MHz (IMT-2000)
Band Class II –	1900 (PCS)
Band Class III –	1800 (DCS)
Band Class IV –	AWS-1
Band Class V –	800 MHz (American Cellular)
Band Class VI –	Japanese 800
Band Class VII –	UMTS 2600
Band Class VIII –	European 900 MHz
Band Class IX –	Japanese 1800
Band Class X –	AWS-2
Band Class XIX –	Japanese Extended 800 MHz
Band Class XI –	Japanese 1500 MHz

CDMA Support (TIA-EIA IS-2000-2C)

Band Class 0 –	800 MHz
Band Class 1 –	1900 MHz
Band Class 2 –	TACS
Band Class 3 –	JTACS
Band Class 4 –	KPCS
Band Class 5 –	450 MHz
Band Class 6 –	2 GHz
Band Class 7 –	700 MHz
Band Class 8 –	1800 MHz
Band Class 9 –	900 MHz
Band Class 10 –	Secondary 800 MHz Band
Band Class 11 –	400 MHz European PAMR Band
Band Class 12 –	800 MHz PAMR Band
Band Class 15 –	2100 MHz AWS-1

GSM Support (3GPP 45.005 v9.00)

T-GSM 380 –	380 MHz
T-GSM 410 –	410 MHz
GSM 450 –	450 MHz
GSM 480 –	480 MHz
GSM 710 –	710 MHz
GSM 750 –	750 MHz
GSM 810 –	810 MHz
GSM 850 –	800 MHz (American Cellular)
P-GSM 900 –	900 MHz (European)
E-GSM 900 –	900 MHz (European)
R-GSM 900 –	900 MHz (European)
GSM 1800 –	1800 MHz (DCS)
GSM 1900 –	1900 MHz (PCS)

WiMAX Support (WMF-T23-005-R015v04)

Band Class 1-B	WCS 2300 MHz
Band Class 3-A	MMDS 2500 MHz
Band Class 4-C	INT 3300 MHz
Band Class 5-C	INT-L 3400 MHz
Band Class 5h-C	INT-H 3600 MHz
Band Class 5-D	INT-L 3500 MHz
Band Class 5-E	INT-H 3700 MHz

LTE Support (3GPP TS 36.101 v10.3.0)

Band Class 1 –	2100 MHz (IMT)
Band Class 2 –	1900 MHz (PCS)
Band Class 3 –	1800 MHz (DCS)
Band Class 4 –	AWS-1
Band Class 5 –	850 MHz (CELL)
Band Class 6 –	UMTS Only
Band Class 7 –	2600 MHz (IMT-E)
Band Class 8 –	900 MHz (E-GSM)
Band Class 9 –	1800 MHz (JDCS)
Band Class 10 –	AWS 3
Band Class 11 –	1500 MHz Lower PDC
Band Class 12 –	700 SMH (Lower Block A/B/C)
Band Class 13 –	700 SMH (Upper Block C)
Band Class 14 –	700 SMH (Upper Block D)
Band Class 17 –	700 SMH (Lower Block B/C)
Band Class 18 –	800 MHz Lower (Japan)
Band Class 19 –	800 MHz Upper (Japan)
Band Class 20 –	800 MHz EU DD
Band Class 21 –	1500 MHz Upper PDC
Band Class 22 –	3500 MHz
Band Class 23 –	2000 MHz S-Band (AWS-4)
Band Class 24 –	1600 MHz L-Band
Band Class 25 –	1900 MHz+ (Extended PCS)
Band Class 26 –	850 MHz+ (Extended Cell)
Band Class 27 –	850 MHz+ SMR
Band Class 28 –	800 MHz SMR (APAC)
Band Class 29 –	700 SMH (Lower D/E)
Band Class 30 –	2300 MHz (WCS Block A/B)
Band Class 31 –	450 MHz
Band Class 32 –	L Band
Band Class 33 –	Pre-IMT
Band Class 34 –	2100 MHz (IMT)
Band Class 35 –	1900 MHz (PCS Uplink)
Band Class 36 –	1900 MHz (PCS Downlink)
Band Class 37 –	1900 MHz (PCS Duplex Spacing)
Band Class 38 –	2600 MHz (IMT-E Duplex Spacing)
Band Class 39 –	1900 MHz (DCS-IMT Gap)
Band Class 40 –	2300 MHz TDD
Band Class 41 –	2500 MHz BRS/EBS TDD
Band Class 42 –	3500 MHz TDD
Band Class 43 –	3700 MHz TDD
Band Class 44 –	700 MHz APT TDD
Band Class 66 –	AWS Blocks A-J
Band Class 71 –	US Digital Television

NB-IoT Support (3GPP Release 16)

Band Class 1 –	IMT IoT 2000
Band Class 2 –	PCS
Band Class 3 –	DCS
Band Class 4 –	AWS
Band Class 5 –	Cellular 850
Band Class 8 –	E
Band Class 12 –	Lower SMH Blocks

NB-IoT Support (3GPP Release 16)

Band Class 13 –	Upper SMH Blocks
Band Class 20 –	EU Digital Dividend
Band Class 26 –	Extended Cellular
Band Class 28 –	APT FDD
Band Class 66 –	AWS-3
Band Class 71 –	US Digital Dividend
Band Class 85 –	Extended Lower

Note: All band classes supported, but may not be enabled, please contact QRC for further information

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