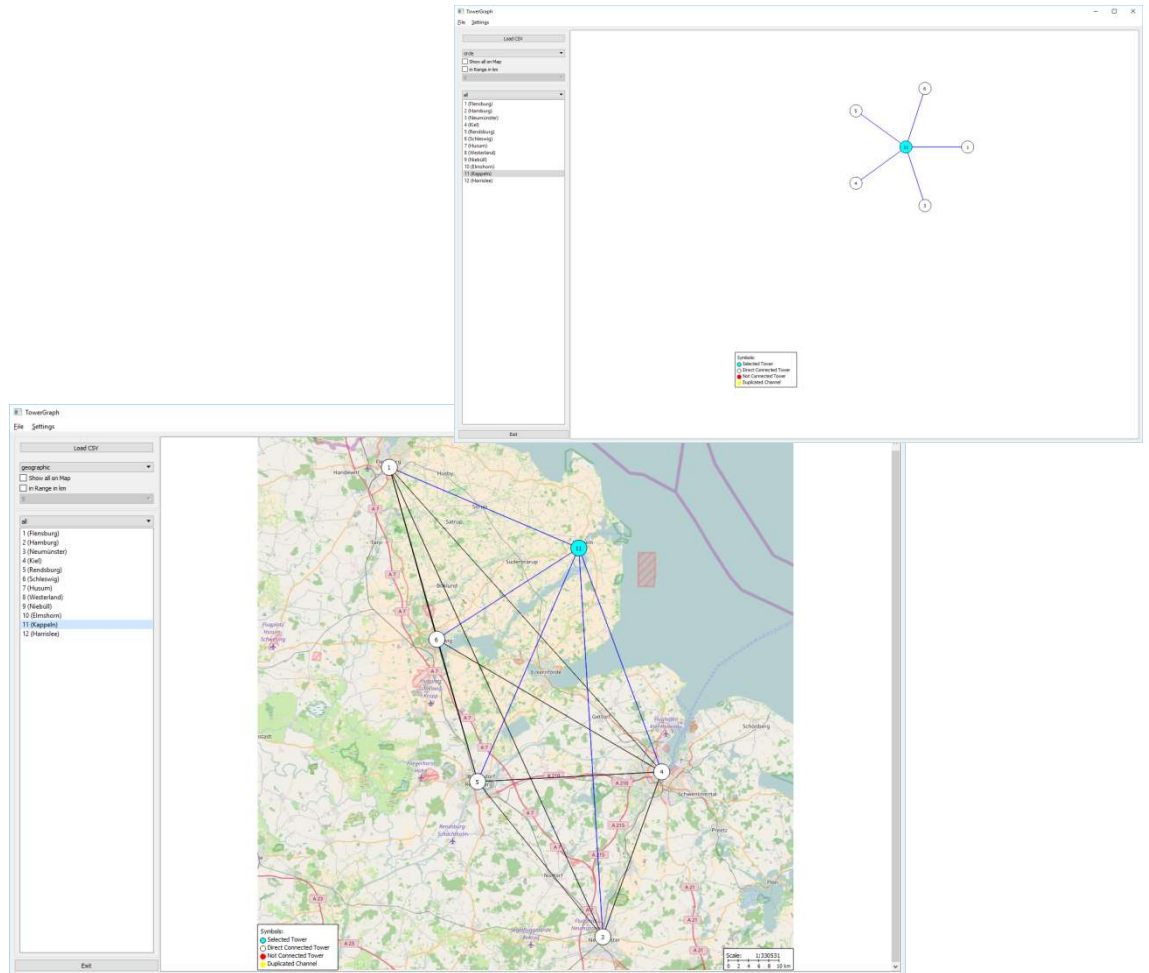


# Network Viewer

5V555-005



modern engineering & design

Edition 06/2020

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**rfe-global**  
radio frequency equipment

The Network Viewer allows users to visualize the data of radio towers and the connection between the radio towers using two types of graphs: geographic and circle.

In combination with the MultiAnalyzer Software, it allows to record and store the scanner data of the MultiAnalyzer as well as gives you a representation of the neighborhood relations of base stations and their automatic analysis.

## **Benefits**

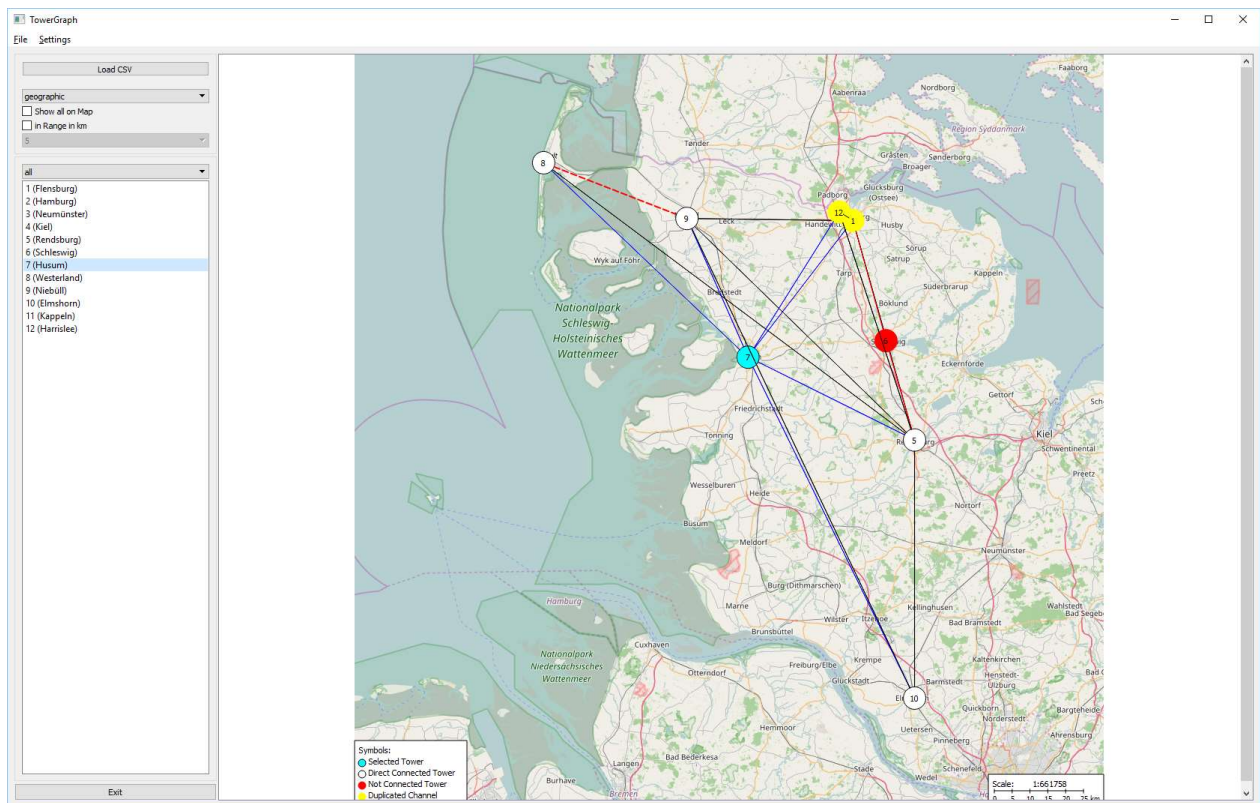
The Network Viewer provides:

- A detailed target / actual analysis based on measured data from the real-time operation
- A display of problems, e.g., Doubled supply frequencies
- A verification of registered neighborhood relations

## **The geographic graph**

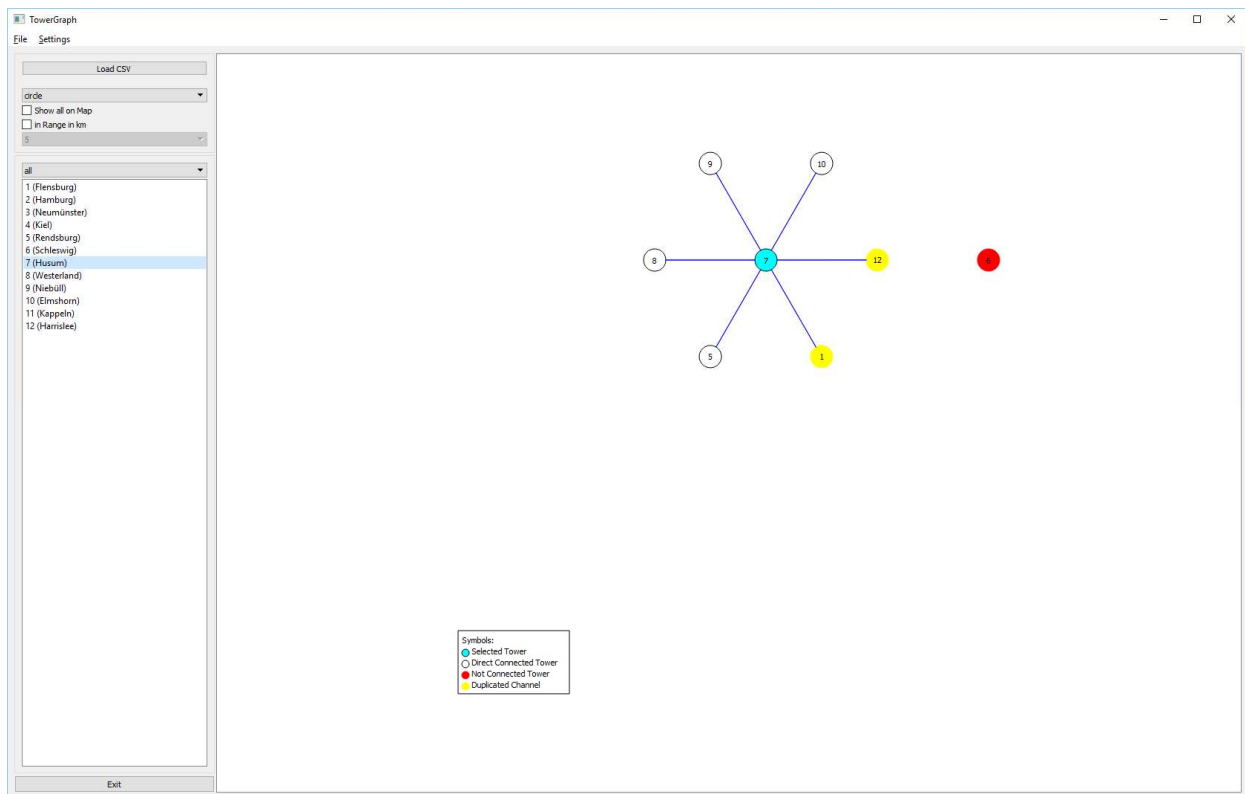
The geographic graph style builds up the coordinates of the tower cells.

To standardize neighbor cell relations of the base stations, the Network Viewer option is particularly useful. Neighbor cells with identical channel numbers are yellow, further neighbor cells are marked in white. Stations without direct connection are shown as a red circle. The connecting lines represent the relationship of the stations (e.g., red-painted lines show incorrect relationships).



## The circle graph

The circle graph style is a model view of the map to show the base stations and their neighbors.



The circle graph provides a detailed comparison of the CURRENT with the DESIRED situation on the basis of measured data from the real-time operation, with display of the problems (for example, twice assigned frequencies in the object supply or in-correctly registered neighboring stations)

# Network Viewer Specifications

Name	Description	
<b>PC Requirements</b>		
PC-Hardware (min)	Intel® Core™ i3, 4 GB Memory, 20 GB sufficient free space on the hard-drive	
OS	Windows 7, Windows 8, Windows 10 (32 or 64 bit Version)	
USB-ports	2.0 (used for chip set device connections)	
Ethernet	10/100/1000 Mbit/s (used for measurement device connection)	
<b>Supported Recording Devices (subject to modifications)</b>		
rfe 7504	Surveillance Monitor (USB receiver) for analysis of 4 frequency bands or 4 single frequencies simultaneously (also mixed possible)	
TCCA TMW	Receiving per UDP data formatted according to TCCA TTR 005-01, V 1.0.0 June 2014	
RTL2832	USB connected RTL283x chip set devices	
R&S EM100, R&S PR100	Rohde&Schwarz® EM100 or PR100 device (Ethernet connected) with remote control option according to ANSI/VITA 49.0 VITA Radio Transport (VRT) Standard.	
R&S ESMD	Rhode&Schwarz® ESMD device (Ethernet connected) with remote control option according to ANSI/VITA 49.0 VITA Radio Transport (VRT) Standard. Support for DDC / no DDC option.	
AirSpy	USB connected AirSpy drive	
<b>Supported Protocols (further updates are planned)</b>		
TETRA	ETSI TS 100 392-2 V3.7.1 (2016-01)	Air Interface (AI)
	ETSI EN 300 392-7 V3.3.1 (2012-07)	Security
	ETSI TS 100 392-15 V1.5.1 (2011-02)	TETRA frequency bands, duplex spacing and channel numbering
	ETSI EN 300 395-2 V1.3.1 (2005-01)	TETRA codec
	ETSI TS 100 392-18-1 V1.4.1 (2008-07)	Location Information Protocol (LIP)
	ETSI EN 300 392-12-22 V1.3.1 (2005-04)	Dynamic Group Number Assignment (DGNA)
DMR	ETSI TS 102 361-1	Air interface protocol
	ETSI TS 102 361-2	Voice and General services and facilities
	ETSI TS 102 361-3	Data protocol
	ETSI TS 102 361-4	Trunking protocol
Results	Graphic and textually conditioned measurement results, exported as image or csv file	

Validity of the data sheet, subject to any changes to the software.

Development:

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