

5 GHz Band WLAN Device DFS Tests

Support for FCC, ETSI, Japan MIC Standards

Vector Signal Generator Minimum Recommended Configuration

Vector Signal Generator	MG3710E
1stRF 100 kHz to 6 GHz	MG3710E-036
ARB Memory Upgrade 256 Msample for 1stRF	MG3710E-045
DFS Radar Pattern (for FCC, Japan MIC)	MX370073B
DFS (ETSI) Waveform Pattern	MX370075A



The recent popularity of smartphones, tablets, etc., has caused an exponential increase in WLAN traffic, resulting in demand for faster communications speeds to help reduce traffic congestion. Consequently, not only is use of frequency bands conventionally reserved for indoor traffic being investigated for outdoor traffic in the 5 GHz WLAN space, but also new 5 GHz band WLAN devices are being actively developed, promoting adoption of newer standards facilitating faster communications speeds. Since 5 GHz band WLAN devices can detect meteorological and marine radar, etc., systems using the 5.3 GHz/5.6 GHz bands, they require a built-in Dynamic Frequency Selection (DFS) function for suppressing signal collisions. Installing the MX370073B and MX370075A in the Vector Signal Generator MG3710E supports FCC, ETSI and Japan MIC compliant test signals required by the DFS function test for WLAN devices to facilitate efficient development of 5 GHz band WLAN devices.

Features

Full Support for All Required Test Patterns

About 400 test patterns must be supported just for ETSI.

The MX370073B/MX370075A have all the waveform patterns required by the test, helping reduce the preparation burden.

Easy Operation by Just Selecting and Loading Waveform Patterns

Even inexperienced operators with little knowledge of the DFS test and equipment can run accurate tests efficiently.

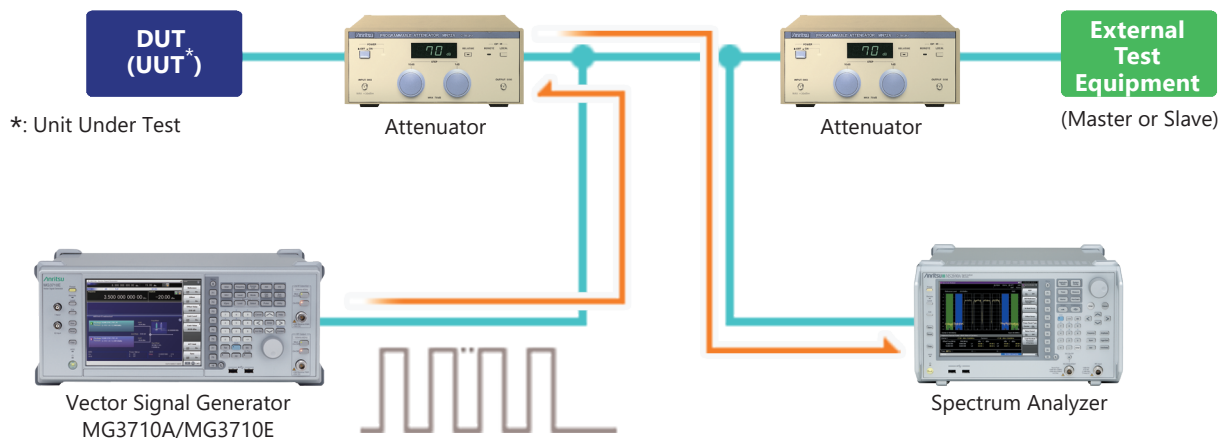
Supports FCC, ETSI, Japan MIC Standards

All key DFS tests standards are covered.

Offers 5.3-GHz band waveform patterns adopted by Japan MIC standard in July 2019.

DFS Test Setup

Pulse signals, etc., are output from the MG3710A/MG3710E and the DUT output signals are monitored by the spectrum analyzer.



List of DFS Test Waveform Patterns for MG3710A/MG3710E

FCC Test Signals (MX370073B) <FCC 06-96 (Released: June 30, 2006), FCC 13-22 (Released: February 20, 2013)>

Test Items	Radar Type	Test Signal	Chapter Number
Short Pulse Radar	0	Fixed Pulse Radar Signals	6.1
	1	Fixed Pulse Radar Signals	6.1
	2	Variable Pulse Radar Signals	6.1
	3	Variable Pulse Radar Signals	6.1
	4	Variable Pulse Radar Signals	6.1
Long Pulse Radar	5	Chirp Radar Signals	6.2
Frequency Hopping Radar	6	Frequency Hopping Radar Signals	6.3 (Frequency Hopping Bandwidth = 20 MHz, 40 MHz, 80 MHz, 160 MHz)

Japan MIC Standard Test Signals (MX370073B) <Reference: TELEC-T403 V14.0>

Test Items	Frequency Band	Test Signal	Test Number
Carrier Sense (2)	5.3 GHz	Fixed Pulse Radar Signals*1	Table No. 1 Category 1
			Table No. 1 Category 2
	5.3 GHz	Radar Radio Waves*2	Table No. 1 Category 1
			Table No. 1 Category 2
			Table No. 1 Category 3
			Table No. 1 Category 4
			Table No. 1 Category 5
			Table No. 1 Category 6
			Table No. 1 Category 7
			Table No. 1 Category 8
Carrier Sense (3)	5.6 GHz	Fixed Pulse Radar Signals	Table No. 2 Category 1
			Table No. 2 Category 2
			Table No. 2 Category 3
		Variable Pulse Radar Signals	Table No. 2 Category 4
	Table No. 2 Category 5		
	Table No. 2 Category 6		
	Chirp Radar Signals		Table No. 3 Category 1
	Frequency Hopping Radar Signals	Table No. 4 Category 1	
(Frequency Hopping Bandwidth = 20 MHz, 40 MHz, 80 MHz, 160 MHz)			

*1: Uses waveform patterns prior to July 2019 Japan MIC Standard revision

*2: Uses new waveform patterns adopted by July 2019 Japan MIC Standard revision

ETSI Test Signals (MX370075A) <ETSI EN 301 893 V2.1.1>

Radar Test Signal	PRF*3		PRF Types*3	Pulse Count Per Burst (PPB)
	Min.	Max.		
Reference DFS test signal	700		1	18
1	200	1000	1	10*4
2	200	1600	1	15*4
3	2300	4000	1	25
4*5	2000	4000	1	20
5	300	400	2 or 3	10*4
6	400	1200	2 or 3	15*4

*3: PRF: Pulse Repetition Frequency.

*4: 18 when testing at 5600 MHz at the CAC and Off-Channel CAC test.

*5: The Radar test signal 4 waveform is chirp-modulated in the ± 2.5 MHz range.

Difference between MX370073B and MX370073A

✓: Supported

Model	Vector Signal Generator			Note
	MG3710E	MG3710A*6 (discontinued)	MG3700A (discontinued)	
MX370073A (discontinued)		✓	✓	<ul style="list-style-type: none"> For FCC and Japan MIC standard Does not include 5.3-GHz band waveform patterns adopted by Japan MIC standard in July 2019
MX370073B	✓	✓		<ul style="list-style-type: none"> For Japan MIC standard and FCC standard Includes all waveform patterns offered by MX370073A Includes 5.3-GHz band waveform patterns adopted by Japan MIC standard in July 2019

*6: Although production of the MG3710A main frame has been discontinued, the MX370073B and MX370075A can be installed in existing MG3710A units.

Ordering Information

Please specify the model/order number, name and quantity when ordering.

The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Minimum Recommended Configuration

Model/Code	Name	Remarks
MG3710E	Vector Signal Generator	Main Frame
MG3710E-036	1stRF 100 kHz to 6 GHz	Maximum frequency selection
MG3710E-045	ARB Memory Upgrade 256 Msample for 1stRF	Expands ARB memory capacity
MX370073B	DFS Radar Pattern	FCC and Japan MIC Standards
MX370075A	DFS (ETSI) Waveform Pattern	ETSI Standard