DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch
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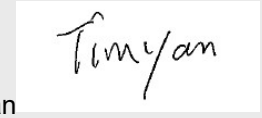
Test report No: 4909379.60

FCC Dynamic Frequency Selection (DFS) TEST REPORT

Product Name	Miko Mini Robot
Trademark	MIKO
Model and /or type reference	EMK401
FCC ID	2AS3S-EMK401
Features	Input rating: 5,0 V⎓; 3,0 A or 9,0 V⎓; 2,0 A or 12,0 V⎓; 1,5 A. Internal Li-ion battery (18650): 2400 mAh; 3,7 V⎓; 8,88 Wh.
Applicant´s name / address	RN Chidakashi Technologies Private Limited Flat No - 4, StambhTirth Building, Plot No 82, R.A. Kidwai Road Wadala, Mumbai, 400031, India
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart E Section 15.407
Verdict Summary	IN COMPLIANCE
Tested by (name & signature)	Jazz Liang 
Approved by (name & signature)	Tim Yan 
Date of issue	2023-11-13
Report template No	Template_Part 15E-DFS-RF-V1.0

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GENERAL CONDITIONS

Test Location	DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China FCC Designation Number: CN1324;
Date of receipt of test item	2023-09-12
Date (s) of performance of tests	2023-09-12 to 2023-11-13
Test sample	Normal sample: EMK401 (lab no.4909379-1) RF conducted sample: EMK401 (lab no.4909379-1) RF radiated sample: EMK401 (lab no.4909379-1)

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	:	Equipment Under Test
QP	:	Quasi-Peak
CAV	:	CISPR Average
AV	:	Average
CDN	:	Coupling Decoupling Network
SAC	:	Semi-Anechoic Chamber
OATS	:	Open Area Test Site
BW	:	Bandwidth
AM	:	Amplitude Modulation
PM	:	Pulse Modulation
HCP	:	Horizontal Coupling Plane
VCP	:	Vertical Coupling Plane
U_N	:	Nominal voltage
*T*x	:	Transmitter
*R*x	:	Receiver
N/A	:	Not Applicable
N/M	:	Not Measured

DOCUMENT HISTORY

Report nr.	Date	Description
4909379.60	2023-11-13	First release.

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. This report will not be used for social proof function in China market.
6. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Informaion.

USED EQUIPMENT

FOR RF

Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2024/01/09
Chamber	ETS	/	/	G/L856	2024/06/04
Horn antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2024/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2024/02/21
Horn antenna (18GHz-26.5GHz)	ETS	3160-09	00164643	G/L1237	2024/01/09
Horn antenna preamplifier	/	SCU-26D	1879064	G/L1237-1	2024/01/08
EMI receiver	R&S	ESCI	101205	G/L857	2024/07/02
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2024/03/12
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2023/12/05
OSP	R&S	OSP 150	101907	GZ1894	2024/02/23
Signal generator	R&S	SMB 100A	181317	GZ1895	2024/02/23
Vector signal generator	R&S	SMBV100A	263671	GZ1896	2024/02/23
Wireless connectivity tester	R&S	CMW 270	100990	GZ1893	2024/02/23
Manual step attenuator (11dB)	Keysight	8494B	TH60074118	GZ2086	2024/07/07
Manual step attenuator (70dB)	Keysight	8495D	TH60074471	GZ2087	2024/07/07
Programmable Temperature & Humidity Chamber	ASTUOD	TT-5166	52689	GZ2209	2024/05/08
Test software	R&S	EMC32	---	---	Version 11.30.00

UNCERTAINTY

Test Item	Uncertainty
Occupied Channel Bandwidth	±0,7%
RF Output power, conducted	±0,6dB
Power Spectral Density, Conducted	±0,6dB
Unwanted Emissions, Conducted	±0.7dB
Spurious (30-1000MHz)	±4,4dB
Spurious (1-12,75GHz)	±4,4dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item..... :	Miko Mini Robot
Trademark ..... :	MIKO
Model / Type number ..... :	EMK401
FCC ID..... :	2AS3S-EMK401
Hardware ..... :	N/A
Software ..... :	N/A
Firmware..... :	N/A
Ratings ..... :	Input rating: 5,0 V⎓; 3,0 A or 9,0 V⎓; 2,0 A or 12,0 V⎓; 1,5 A. Internal Li-ion battery (18650): 2400 mAh; 3,7 V⎓; 8,88 Wh.
Manufacturer ..... :	Same as applicant
Factory 1..... :	Pacific Industries Zhongshan Limited Xincun Factory Area, Baishawan Industrial Park, Eastern District, 528400, Zhongshan, Guangdong, China.
Factory 2..... :	Kaynes Electronics Manufacturing Private Limited 26-27. Bandanguppe-kellamballi Industrial Area, State Code: 29 ,571313,Chamarajanagara,India

Rated power supply..... :	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☒	AC: 100-240 V, 50/60 Hz	☒	☐	☐	☒	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 5 V					
	☐	Battery:					
Mounting position ..... :	☒	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☒	Hand-held equipment					
	☐	Other:					

Wireless module Characteristic

Wireless module No.	SKI.WB800DS2.1_800M
Operating frequency range(s) – Tx :	2412 – 2462 MHz for 2.4G WIFI WLAN 5GHz Band: 5180 MHz ~ 5320 MHz, 5500 MHz ~ 5700 MHz, 5745 MHz ~ 5825 MHz; 2402 – 2480 MHz for Bluetooth
Operating frequency range(s) – Rx :	2412 – 2462 MHz for 2.4G WIFI WLAN 5GHz Band: 5180 MHz ~ 5320 MHz, 5500 MHz ~ 5700 MHz, 5745 MHz ~ 5825 MHz;

	2402 – 2480 MHz for Bluetooth
Type of Modulation.....:	WLAN 2.4GHz : IEEE 802.11b: DSSS (CCK, QPSK, BPSK); IEEE 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM); IEEE 802.11n HT20/40: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ax (HE20/40): OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) WLAN 5GHz : IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac (VHT20/40): OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax (HE20/40): OFDMA (256QAM, 64QAM, 16QAM, QPSK, BPSK); Bluetooth LE:GFSK
Antenna type .....:	FPC antenna
Antenna gain .....:	2,3 dBi for 2.4GHz 2,48 dBi for 5GHz
Operation temperature range	-20 – 70 ℃

Antenna List

Antenna Model No.	LJF02-23062508-R0A					
Antenna Manufacturer	Shenzhen Lejin radio frequency technology Co., LTD					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna Technology	☒	SISO				
	☐	MIMO	☐	Basic methodology		
			☐	Sectorized antenna systems		
			☐	Cross-polarized antennas		
			☐	Unequal antenna gains, with equal transmit powers		
			☐	Spatial Multiplexing		
			☐	Cyclic Delay Diversity (CDD)		
Antenna Type	FPC antenna					
Antenna Gain						
Antenna Technology			Ant Gain(eth1) (dBi)			
☒ SISO	☒	Ant1	2,3 dBi for 2.4GHz 2,48 dBi for 5GHz			
	☐	Ant2	-			

The WIFI mode operating channels are:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2412	7	2447
1	2417	8	2452
2	2422	9	2457
3	2427	10	2462
4	2432	-	-
5	2437	-	-
6	2442	-	-

802.11a/n/ac/ax(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz	165	5825 MHz
802.11n/ac/ax(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz	62	5310 MHz
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	151	5755 MHz	159	5795 MHz	N/A	N/A

The radio module (Bluetooth) operating channels are:

BLE:

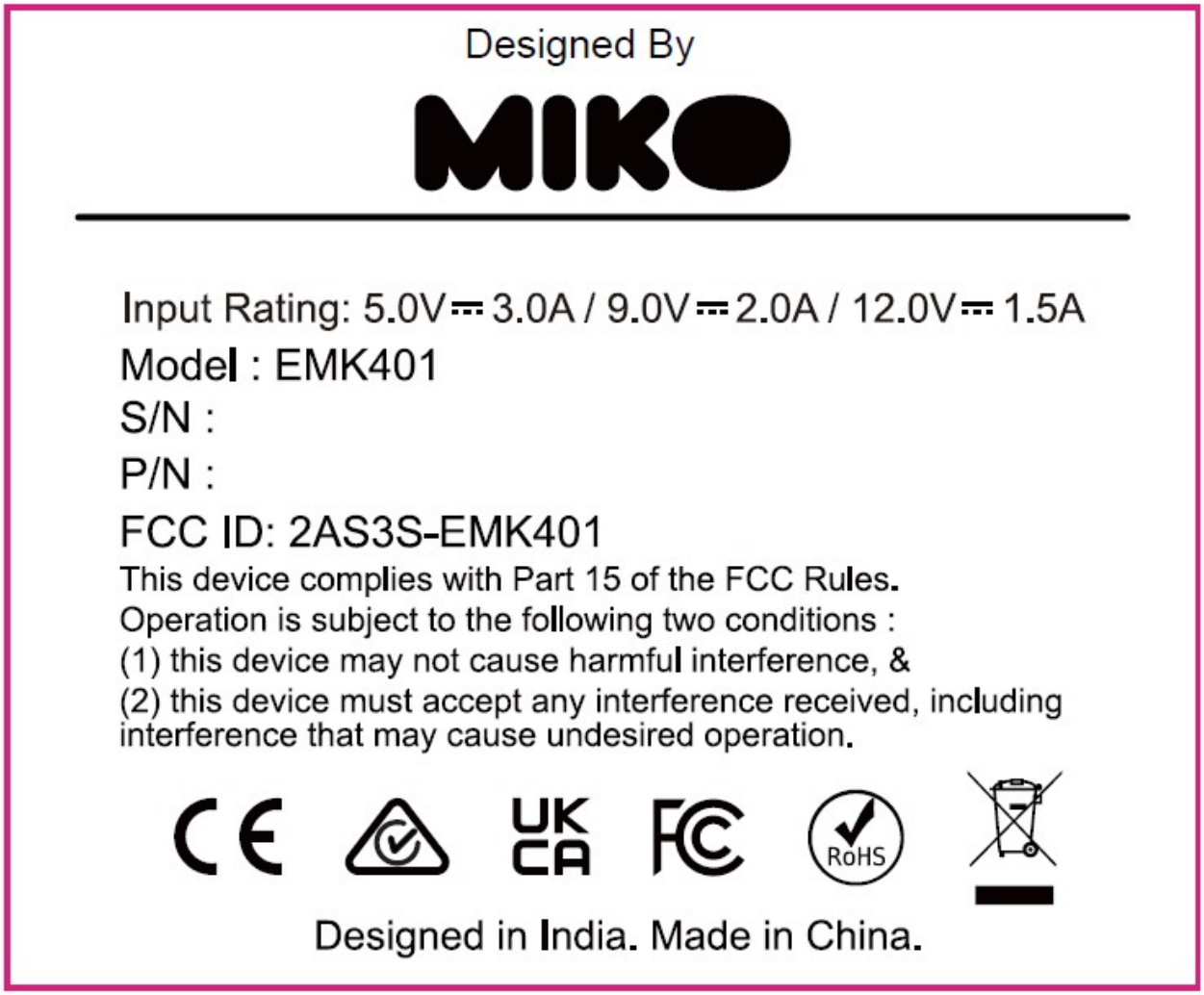
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478

11	2424	25	2452	39	2480
12	2426	26	2454	-	-
13	2428	27	2456	-	-

Intended use of the Equipment Under Test (EUT)
The apparatus as supplied for the test is Miko Mini Robot which intended for residential use, the product contains electronic circuitry and with earth connection. It contains a Wireless module, so it would be controlled by other Wi-Fi devices through APPs. Hence, model EMK401 which contains this certified module SKI.WB800DS2.1_800M was chosen for full test.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Remark:

1.The CE marking must have substantially the same vertical dimension, which shall not be less than 5 mm.
2.The symbol combination of WEEE logo shall have a minimum height of 7 mm.

3.The EU/EFTA importer (and manufacture, if it is different)'s ①company name, ②registered trade name or registered trademark and③the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

2 UNII DEVICE DESCRIPTION

The UUT operates in the following band:

1. 5250-5350 MHz
2. 5470-5725 MHz

The UUT is a Client Device that does not have radar detection capability and ad-hoc function. The highest gain antenna assembly utilized with the EUT has a maximum gain refer to clause 1.3. The 50-ohm Tx/Rx antenna port is connected to the test system to perform conducted tests. TPC is not required since the maximum EIRP is less than 500mW (27dBm).

The UUT utilizes 802.11a/n/ac/ax IP based architecture. Three nominal channel bandwidths, 20 MHz, 40MHz are implemented.

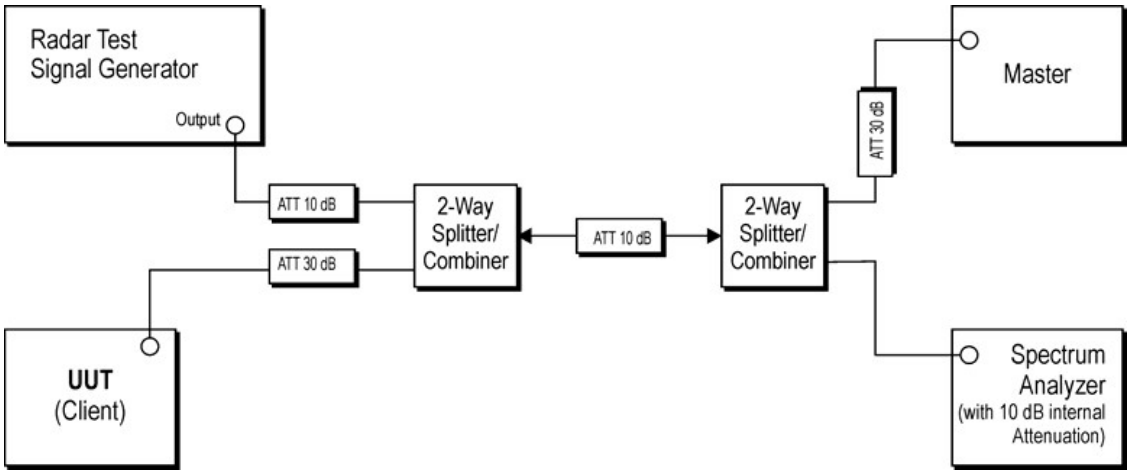
The master device is an ASUS 802.11a/b/g/n/ac/ax Access Point. The ASUS Access Point FCC ID: MSQ-RTAXHP00

The UUT is a client device without radar detection therefore the interference threshold level is not required.

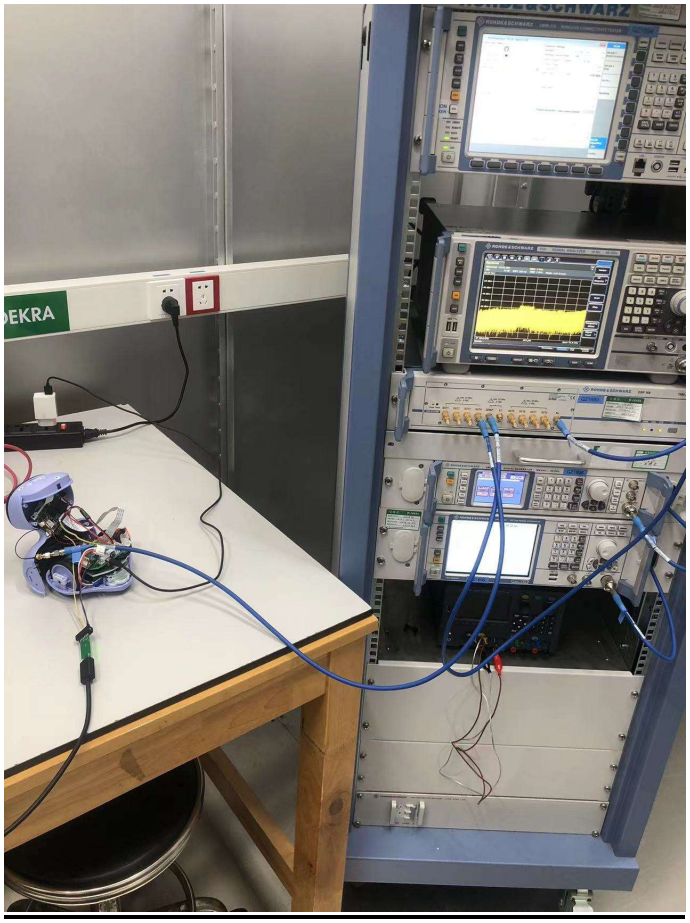
Statement: Information regarding the parameters of the detected Radar Waveforms is not available to the end user.

3 TEST DESCRIPTION

3.1 Test Setup



DFS Set-up Photo: Slave and Spectrum Analyzer



3.2 Limits

According to §15.407(h), 905462 D02 UNII DFS Compliance Procedures New Rules v01, 905462 D03 UNII Clients Without Radar Detection New Rules v01r02 and FCC 14-30 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	**Not Required**	Yes
DFS Detection Threshold	Yes	**Not Required**	Yes
Channel Availability Check Time	Yes	**Not Required**	Not Required
U-NII Detection Bandwidth	Yes	**Not Required**	Yes

Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master or Client (with radar detection)	Client (without radar detection)
DFS Detection Threshold	Yes	**Not Required**
Channel Closing Transmission Time	Yes	**Yes**
Channel Move Time	Yes	**Yes**
U-NII Detection Bandwidth	Yes	**Not required**

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client (without radar detection)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	**Not required**
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	**Test using the widest BW mode available for the link**
All other tests	Any single BW mode	**Not required**
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequencies between the bonded 20 MHz channel blocks.		

DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value (see note)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

DFS Response requirement values

Parameter	Value
Non-Occupancy Period	Minimum 30 minutes
Channel Availability Check Time	60 Seconds
Channel Move Time	10 Seconds (See Note1)
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

Short Pulse Radar Test Waveforms

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 µ sec, with a minimum increment of 1 µ sec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

For example if in Short Pulse Radar Type 1 Test B a PRI of 3066 usec is selected, the number of

pulses would be = Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^6}{3066}\right)\right\}$ = Roundup{17.2} = 18.

Table 5a - Pulse Repetition Intervals Values for Test A

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930. 5	518
2	1858. 7	538
3	1792. 1	558
4	1730. 1	578
5	1672. 2	598
6	1618. 1	618
7	1567. 4	638
8	1519. 8	658
9	1474. 9	678
10	1432. 7	698
11	1392. 8	718
12	1355	738
13	1319. 3	758
14	1285. 3	778
15	1253. 1	798
16	1222. 5	818
17	1193. 3	838
18	1165. 6	858
19	1139	878
20	1113. 6	898
21	1089. 3	918
22	1066. 1	938
23	326. 2	3066

The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4.

Long Pulse Radar Test Signal

Radar Waveform	Bursts	Pulses Per Burst	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the long pulse radar test signal. If more than 30 waveforms are used for the long pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms.

Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (μsec)	PRI (μsec)	Hopping Sequence Length (msec)	Pulses Per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	0.333	70%	30

For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

3.3 Client Device requreiment

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

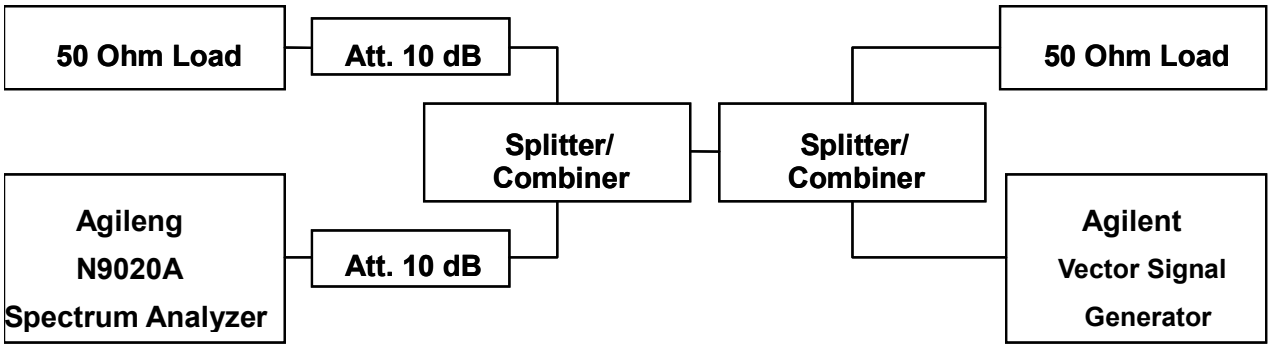
e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

3.4 Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted radar waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were replace 50ohm terminal from master and client device and no transmissions by either the master or client device. The spectrum analyzer was switched to the zero span (time domain) at the frequency of the radar waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3MHz and 3 MHz.

The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -61dBm due to the interference threshold level is not required.

Conducted Calibration Setup



4 CHANNEL MOVE TIME ,CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD

4.1 Test Procedure

These tests define how the following DFS parameters are verified during In-Service Monitoring; Channel Closing Transmission Time and Channel Move Time.

The steps below define the procedure to determine the above mentioned parameters when a radar burst with a level -61dBm is generated on the operating channel of the U-NII device.

A U-NII device operating as a Client device will associate with the Master device at 5500MHz.

During the in-service monitoring detection probability and channel moving tests the system was configured with a streaming video file from the master device (sourced by the PC connected to the master device via an Ethernet interface) to the client device. The streamed file was the “FCC” test file and the client device was using Media Player Classic as required by FCC Part 15 Subpart E.

Observe the transmissions of the EUT at the end of the radar burst on the operating channel for duration greater than 10 seconds. Measure and record the transmissions from the spectrum analyzer during the observation time (Channel Move Time). Compare the channel move time and channel closing transmission time results to the limits defined in the DFS Response requirement values table.

The client and DFS-certified master device are associated, and a movie can be streamed as specified in the DFS Order for a non-occupancy period test

The test frequency has been monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

4.2 Test Requirement

Parameter	Value
Channel Move Time	10 Seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Non-Occupancy	the device is considered compliant if nothing appears in the client non-occupancy period test

4.3 Test Result of Channel Move Time , Channel Closing Transmission Time and Non-Occupancy Period

DFS In-Service Monitoring (5270 MHz; 15.000 dBm; 40 MHz)

Test according to FCC title 47 part 15 15.407(h), KDB 905462 D02 U-NII DFS Compliance Procedures New Rules v02

Measurement Summary

DUT Frequency (MHz)	Radar Type No.	Type of Measurement value	Overall Result	Overall Comment
5270.000000	0	First of all Transmitt Test	PASS	DUT is transmitting
5270.000000	0	Channel Move Time	PASS	
5270.000000	0	Channel Closing Transmission Time	PASS	
5270.000000	0	Non-occupancy period	PASS	

Channel Move Time Detailed Result

DUT Frequency (MHz)	Radar Type No.	CMT Tx Time (s)	CMT Limit (s)	CMT Result
5270.000000	0	0.000	10.000	PASS

(continuation of the "Channel Move Time Detailed Result" table from column 5 ...)

DUT Frequency (MHz)	CMT Comment
5270.000000	Tx Time value is last trailing edge found within sweep. See Note 1.

Channel Closing Transmission Time Detailed Results

DUT Frequency (MHz)	Radar Type No.	CCTT Type of Value	CCTT No. of Pulses found	CCTT Tx Time (ms)
5270.000000	0	first 200 ms	8	0.868
5270.000000	0	remaining 10.0 second(s) period	0	0.000

(continuation of the "Channel Closing Transmission Time Detailed Results" table from column 5 ...)

DUT Frequency (MHz)	CCTT Tx Time Limit (ms)	CCTT Result	CCTT Comment
5270.000000	200.000	PASS	See Note 1.
5270.000000	60.000	PASS	See Note 1.

Non-occupancy period Detailed Results

DUT Frequency (MHz)	Radar Type No.	NOP No. of Pulses found	NOP No. of Pulses Limit	NOP Tx Time (s)	NOP Tx Time Limit (s)
5270.000000	0	0	0	0.000	0.000

(continuation of the "Non-occupancy period Detailed Results" table from column 6 ...)

DUT Frequency (MHz)	NOP Result
5270.000000	PASS

Transmitting Test Detailed Results

DUT Frequency (MHz)	Tx-Test Tx OnTime	Tx-Test Tx OnTime Limit	Tx-Test No. of Pulses found	Tx-Test Result	Tx-Test Comment
5270.000000	130.000	>0.000 s	24	PASS	

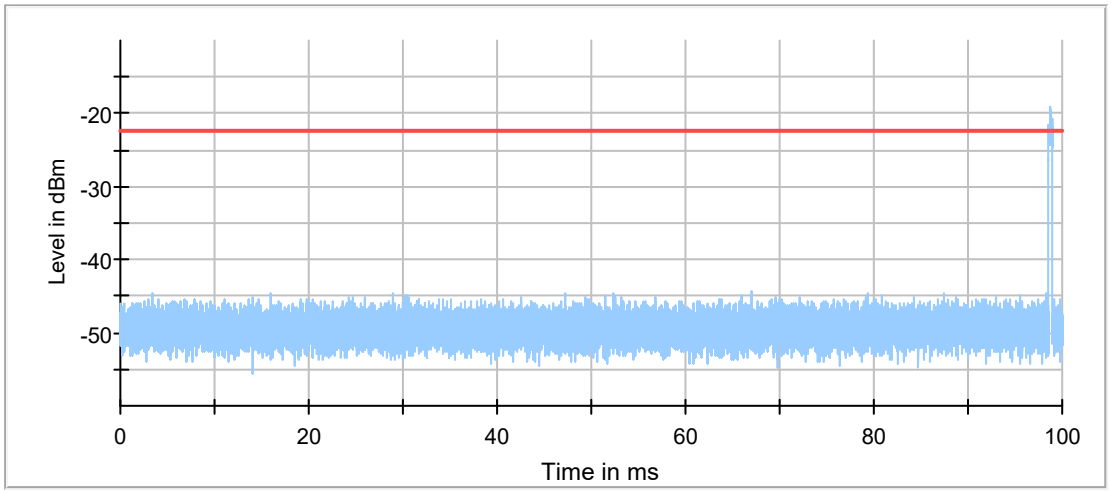
Radar level verification

Description / Formula	Value	Unit
IF(({DFS Mode(0/1/2)}=0)or({DFS Mode(0/1/2)}=1) , IF((dBm2W({Nominal Power[dBm]})>0.2) , -64 , IF(({Configured PSD[dBm]}<10) , -62 , -64))+ {Attenuation Vector Generator to DUT[dB]} , -50+ {Attenuation Vector Generator to COMP[dB]})+	Given setting / formula to calculate Vector Generator level	--
Configured DUT EIRP:	31.62	mW
Configured DUT PSD:	5.00	dBm/MHz
Requirement of the Detection threshold value for this given values acc. to FCC clause 5.2 / Table 3	-62	dBm
Vector Generator level setting	-1.09	dBm
Configured overall pathloss from Vector Generator RF out to DUT connector of 'DUT to OSP'-cable	34.73	dB
Given additional level added to the amplitude of the waveform to account for variations in measurement equipment acc. to FCC clause 5.2 / Table 3 / Note 2	1.00	dB
This results in the following radar signal level at the DUT	-35.81	dBm

Additional Information

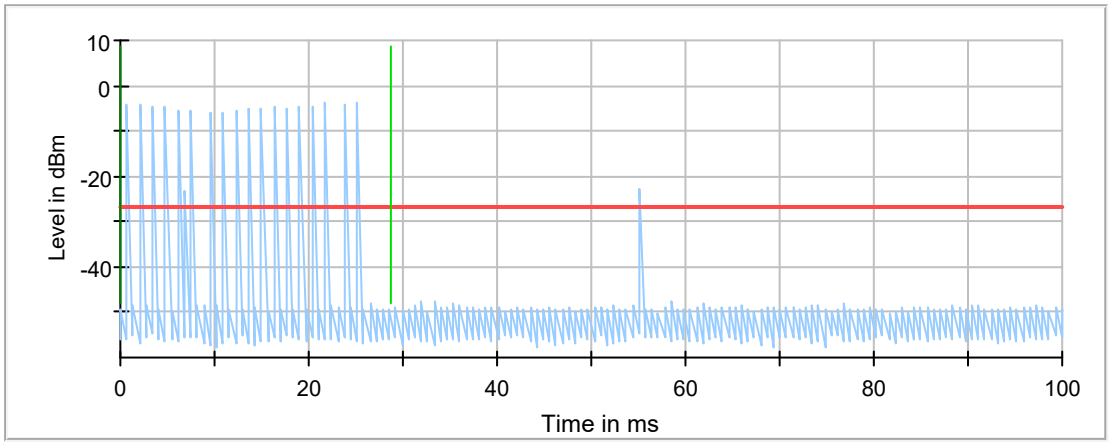
Note	Description
Note 1:	**Because of the radar pulse event at the beginning, the investigation of the trace begins with an offset of 28.7 ms conforming to the end of the Radar burst.**
Note 2:	**Channel move time (CMT) / channel closing transmission time (CCTT) measurement was made with hi resolution video sweep using OSP DAQ channel**
Note 3:	**Because of the substantially higher sampling rate of the video signal the results for CCTT and CMT are more accurate than in the graphics visible. Reached timing accuracy of the video trace: approx 4 μs**
Note 4:	**The Non-Occupancy Period trace starts at the end of the Channel move time trace (20.000 secs.) Labeling of the x-axis (time) is relative to its beginning (0 secs.)**

Transmitt Test Sweep



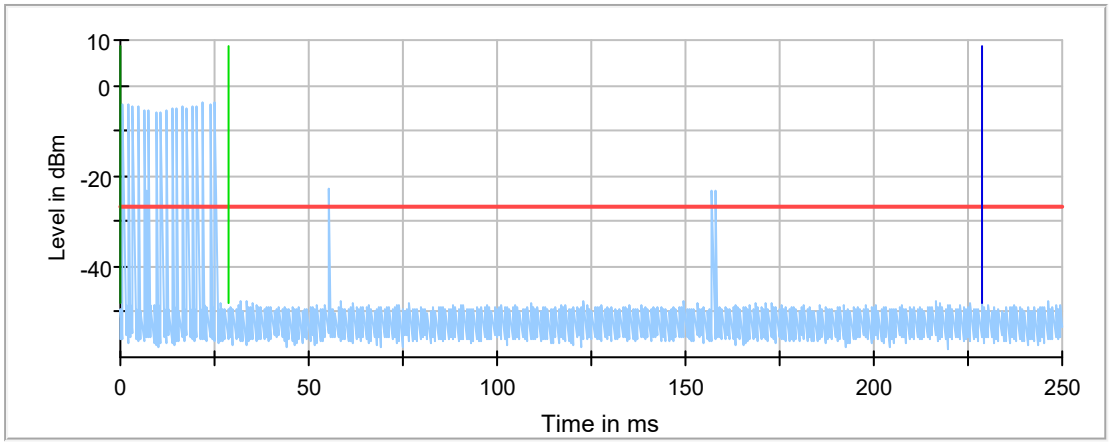
Transmitt Test Sweep Threshold

Channel Move Time



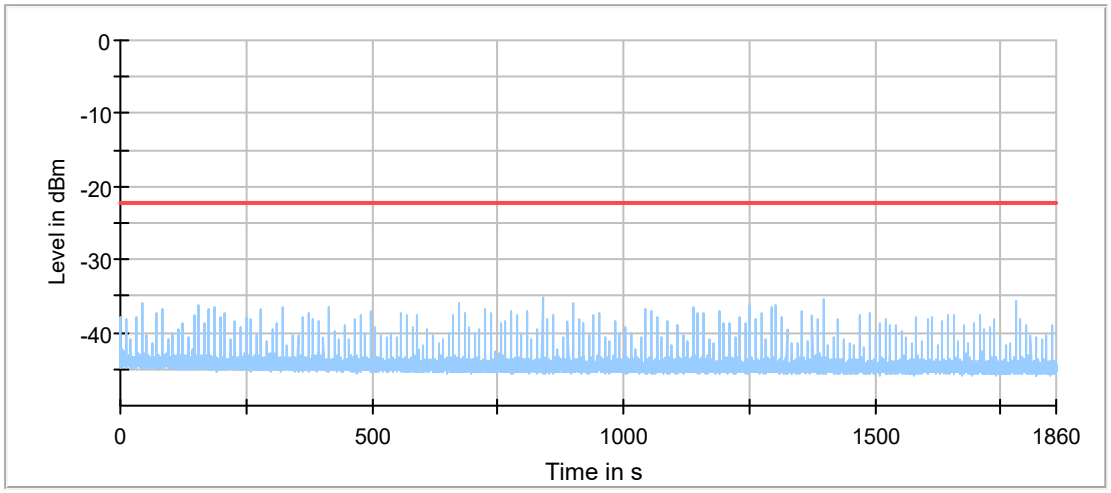
Channel Move Time
Start of Radar
First 200ms of Channel Closing Tx Time
Threshold
Trigger at end of Radar
10sec Channel Move Time Limit

Channel Move Time first 200ms



Channel Move Time first 200ms
Start of Radar
First 200ms of Channel Closing Tx Time
Threshold
Trigger at end of Radar

Non-occupancy period



Non-occupancy period
Threshold

The End