

TEST REPORT

DFS

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Standards

47 CFR Part 15.407 RSS-210, Issue 8 RSS-Gen, Issue 3

Issued to

SAGEMCOM

250, route de l'Empereur 92848 RUEIL MALMAISON

Apparatus under test

Trade mark
Manufacturer
Type

Serial number FCC ID Home router

SAGEMCOM SAGEMCOM Fast 5260

1222222222222 VW3FAST5260

Test date

2013/07/22 to 2013/07/25

Tests performed by

Stéphane PHOUDIAH

Test site

Fontenay aux Roses

Date of issue

February 19th, 2014

Written by : Stéphane PHOUDIAH Tests operator



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3



SUMMARY

1.	TEST PROGRAM	3
2.	EQUIPMENT DESCRIPTION	4
3.	DFS DETECTION THRESHOLDS DETERMINATION & REFERENCE NOISE LEVEL	13
4.	U-NII DETECTION BANDWIDTH	17
5.	CHANNEL AVAILABILITY CHECK	23
6.	STATISTICAL PERFORMANCE CHECK	28
7.	CHANNEL MOVE TIME & CLOSING TRANSMISSION TIME	36
8.	NON-OCCUPANCY PERIOD	44
9.	TEST EQUIPMENT LIST	47
10.	UNCERTAINTIES CHART	48
11	ANNEX	49



1. TEST PROGRAM

References

Standards: - 47 CFR Part 15E

- RSS-210 - RSS-Gen - CISPR 16-4-2 - ANSI C63.10

Standard Section	Test Description	TEST RESULT - Comments
RSS-Gen § 4.6.1	Occupied Bandwidth	See Test Report N°122014-644470C
CFR 47 § 15.407 (a) (1) (2) (3)	-26dB Bandwidth	See Test Report N°122014-644470C
CFR 47 § 15.407 (a) (1) RSS-210 § A9.2 (1)	Power Limits	See Test Report N°122014-644470C
CFR 47 § 15.407 (a) (1) RSS-210 § A9.2 (1)	Power Spectral Density	See Test Report N°122014-644470C
CFR 47 § 15.207 (a) (6)	Peak Excursion Ratio	See Test Report N°122014-644470C
CFR 47 § 15.407 (b) (1) (2) (3) RSS-210 § A9.2 (1) (2) (3)	Undesirable Emission limits	See Test Report N°122014-644470C
CFR 47 § 15.407 (b) (6) CFR 47 § 15.207 RSS-Gen § 7.2.4 RSS-210 § A9.2 (3)	AC Power Line Conducted Emissions	See Test Report N°122014-644470C
CFR 47 § 15.209 (a) CFR 47 § 15.205 (a) CFR 47 § 15.407 (b) (6) RSS-210 § A9.2 (3)	Unwanted Emissions	See Test Report N°122014-644470C
CFR 47 § 15.407 (g)	Frequency Stability	See Test Report N°122014-644470C
CFR 47 § 15.407 (h) (1)	Transmit Power Control	See Test Report N°122014-644470C
CFR 47 § 15.407 (h) (2) RSS 210 A9.3	Dynamic Frequency Selection	PASS

PASS: UUT complies with standard's requirement FAIL: UUT does not comply with standard's requirement

NA: Not Applicable NP: Test Not Performed



2. EQUIPMENT DESCRIPTION

2.1. HARDWARE & SOFTWARE IDENTIFICATION

• Equipment under test (UUT):





Front view

Rear View

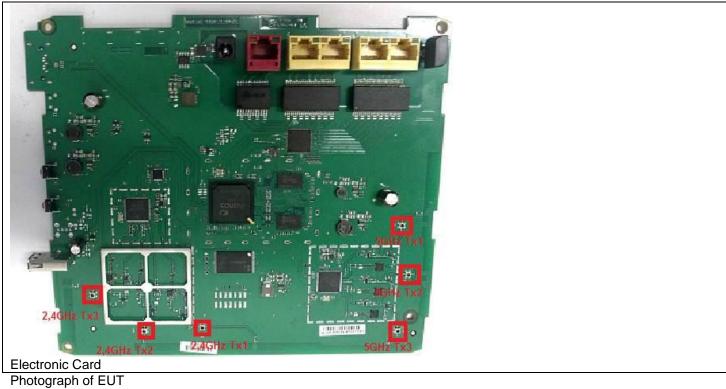


Side view



Power Supply







Auxiliary equipment (AE) used for testing:



Laptop 1 for Client Device: Lenovo L530



Laptop 2 for Master Device: Lenovo R500



Client Device: CISCO LINKSYS AC530 inside the Shielded Box

Laptop 3 for Master Device Setting & Radar Detection Monitoring

Photograph of AE



• Input/output:

- Input Power
- 4 Ethernet ports
- 1 WAN port
- 1 USB ports

• Software identification:

-Software version: V6.0.9.1

• Equipment of the same family:

According to the manufacturer declaration, the router Fast 5260 is a variant of the router F@st 5260CV. This variant is created by removing e-SATA interface and one USB interface (See FAST 5260 declaration for more information), and the radio parts of these 2 variants are strictly identical.

So, Conducted Test results in this test report are retrieves from F@st 5260CV test report (FCC ID: VW3FAST5260CV).

• Equipment information:

- Wifi Version: 802.11a/n HT20/n HT40/ac VHT80
- Modulation technology: OFDM and DSSS modulation
- DFS operation: Master
- User Access Restrictions: Yes (The Manufacturer declares the DFS setting will be not accessible to the end user)
- Time for power-on cycle: The Manufacturer declares a power-on cycle of 54 seconds
- Uniform Spreading: Yes (The Manufacturer declares a uniform channel loading of the spectrum across all channels)
- Number of transmit chains: 3 symmetrical
- Number of receiver chains: 3
- Type of the equipment: Stand-alone equipment
- Type of power source: External power supply
- Antenna type: Integral
- Test sequence/test software used: See 2.2. Running Mode
- System Architecture: IP based
- Operating frequency range

Frequency Band (MHz)	Test Report
2400MHz to 2483,5MHz	125772-652184A
5150MHz to 5350MHz	125772-652184C&D
5470MHz to 5725MHz (Note 1)	125772-652184C&D
5725MHz to 5850MHz	125772-652184B

(Note1: The Manufacturer declares the 5600MHz -5650MHz band is not available)



-Channel plan 802.11a, 802.11n HT20:

-Channel plan 802.11a, 802.	11n H120:
Channel	Frequency (MHz)
C1=36	5180
C2=40	5200
44	5220
C3=48	5240
C4=52	5260
56	5280
C5=60	5300
C6=64	5320
C7=100	5500
104	5520
108	5540
112	5560
C8=116	5580
132	5660
136	5680
C9=140	5700

-Channel plan 802.11n HT40:

	Frequency (MHz)
C10=36+40	5190
C11=44+48	5230
C12=52+56	5270
C13=60+64	5310
C14=100+104	5510
C15=108+112	5550
C16=132+136	5670

-Channel plan 802.11ac VHT80:

Gridinier plan 60211146 1111 601					
Channel	Frequency (MHz)				
C17=36+40+44+48	5210				
C18=52+56+60+64	5290				
C19=100+104+108+112	5530				



-Data Rate:

802.11a						
Data Rate (Mbps)	Modulation Type					
6	BPSK					
9	BPSK					
12	QPSK					
18	QPSK					
24	16-QAM					
36	16-QAM					
48	64-QAM					
54	64-QAM					

			802.11	n HT20	802.11	n HT40
MCS index	Spatial streams	Modulation Type	Data rate	e (Mbit/s	Data rate	(Mbit/s)
IIIucx	Streams	Туре	GI=800ns	GI=400ns	GI=800ns	GI=400ns
0	1	BPSK	6.50	7.20	13.50	15.00
1	1	QPSK	13.00	14.40	27.00	30.00
2	1	QPSK	19.50	21.70	40.50	45.00
3	1	16-QAM	26.00	28.90	54.00	60.00
4	1	16-QAM	39.00	43.30	81.00	90.00
5	1	64-QAM	52.00	57.80	108.00	120.00
6	1	64-QAM	58.50	65.00	121.50	135.00
7	1	64-QAM	65.00	72.20	135.00	150.00
8	2	BPSK	13.00	14.40	27.00	30.00
9	2	QPSK	26.00	28.90	54.00	60.00
10	2	QPSK	39.00	43.30	81.00	90.00
11	2	16-QAM	52.00	57.80	108.00	120.00
12	2	16-QAM	78.00	86.70	162.00	180.00
13	2	64-QAM	104.00	115.60	216.00	240.00
14	2	64-QAM	117.00	130.00	243.00	270.00
15	2	64-QAM	130.00	144.40	270.00	300.00
16	3	BPSK	19.50	21.70	40.50	45.00
17	3	QPSK	39.00	43.30	81.00	90.00
18	3	QPSK	58.50	65.00	121.50	135.00
19	3	16-QAM	78.00	86.70	162.00	180.00
20	3	16-QAM	117.00	130.00	243.00	270.00
21	3	64-QAM	156.00	173.30	324.00	360.00
22	3	64-QAM	175.50	195.00	364.50	405.00
23	3	64-QAM	195.00	216.70	405.00	450.00



			000.44	\/\IT00	
MCS	Spatial	Modulation		c VHT80	
index	streams	Туре	Data rate	1	
			GI=800ns	GI=400ns	
0	1	BPSK	29.3	32.5	
1	1	QPSK	58.5	65	
2	1	QPSK	87.8	97.5	
3	1	16-QAM	117	130	
4	1	16-QAM	175.5	195	
5	1	64-QAM	234	260	
6	1	64-QAM	263.3	292.5	
7	1	64-QAM	292.5	325	
8	1	256-QAM	351	390	
9	1	256-QAM	390	433.3	
10	2	BPSK	58,6	65	
11	2	QPSK	117	130	
12	2	QPSK	175.6	195	
13	2	16-QAM	234	260	
14	2	16-QAM	351	390	
15	2	64-QAM	468	520	
16	2	64-QAM	526.6	585	
17	2	64-QAM	585	650	
18	2	256-QAM	702	780	
19	2	256-QAM	780	866.6	
20	3	BPSK	87.9	97.5	
21	3	QPSK	175.5	195	
22	3	QPSK	263.4	292.5	
23	3	16-QAM	351	390	
24	3	16-QAM	526,5	585	
25	3	64-QAM	702	780	
26	3	64-QAM	789.9	877.5	
27	3	64-QAM	877.5	975	
28	3	256-QAM	1053	1170	
29	3	256-QAM	1170	1299.9	



-Conducted Power (Note 2), Antenna Gain (Note 3) & EIRP

802.11a

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	G1 (dBi)	G2 (dBi)	G3 (dBi)	EIRP 1 (dBm)	EIRP 2 (dBi)	EIRP 3 (dBi)
C4	15	15,17	16,41	4,6	3,7	5,4	19,6	18,87	21,81
C5	15,34	15,3	16,5	4,6	3,7	5,4	19,94	19	21,9
C6	15,41	15,49	16,57	4,6	3,7	5,4	20,01	19,19	21,97
C7	15,81	15,94	16,5	4,6	3,7	5,4	20,41	19,64	21,9
C8	15,79	15,73	17,11	4,6	3,7	5,4	20,39	19,43	22,51
C9	14,66	15,09	16,33	4,6	3,7	5,4	19,26	18,79	21,73

802.11n HT20

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	G1 (dBi)	G2 (dBi)	G3 (dBi)	EIRP 1 (dBm)	EIRP 2 (dBi)	EIRP 3 (dBi)
C4	14,63	14,54	15,61	4,6	3,7	5,4	19,23	18,24	21,01
C5	14,9	14,86	15,64	4,6	3,7	5,4	19,5	18,56	21,04
C6	15,04	15	15,78	4,6	3,7	5,4	19,64	18,7	21,18
C7	15,27	15,57	15,98	4,6	3,7	5,4	19,87	19,27	21,38
C8	15,24	15,41	16,38	4,6	3,7	5,4	19,84	19,11	21,78
C9	14,34	14,5	15,67	4,6	3,7	5,4	18,94	18,2	21,07

802.11n HT40

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	G1 (dBi)	G2 (dBi)	G3 (dBi)	EIRP 1 (dBm)	EIRP 2 (dBi)	EIRP 3 (dBi)
C12	16,36	16,5	17,47	4,6	3,7	5,4	20,96	20,2	22,87
C13	14,39	14,48	15,09	4,6	3,7	5,4	18,99	18,18	20,49
C14	14,79	15,13	15,61	4,6	3,7	5,4	19,39	18,83	21,01
C15	16,86	17,37	18,02	4,6	3,7	5,4	21,46	21,07	23,42
C16	16,05	16,81	17,24	4,6	3,7	5,4	20,65	20,51	22,64

802.11ac 80MHz

Channel	Tx1 (dBm)	Tx2 (dBm)	Tx3 (dBm)	G1 (dBi)	G2 (dBi)	G3 (dBi)	EIRP 1 (dBm)	EIRP 2 (dBi)	EIRP 3 (dBi)
C18	8,47	8,17	9,3	4,6	3,7	5,4	13,07	11,87	14,7
C19	11,04	11,32	11,6	4,6	3,7	5,4	15,64	15,02	17

(Note 2): Measured in Test Report 122014-644470C

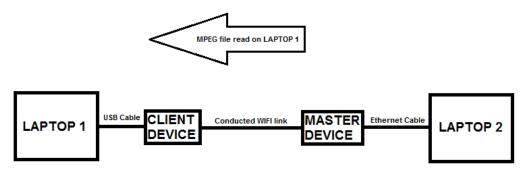
(Note 3): Declared by the Manufacturer



2.2. RUNNING MODE

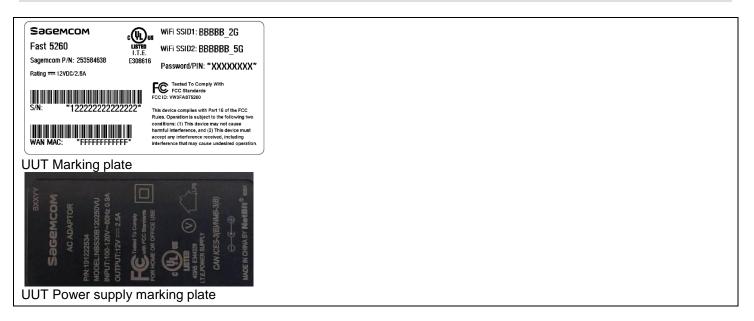
The UUT is set in the following modes during tests:

- System testing is performed with the designed MPEG test file (http://ntiacsd.ntia.doc.gov/dfs/) that streams full motion video at 30 frames per second for channel loading from the Master Device to the Client Device on the test channel. This MPEG file is played via 2 laptops as follow:



- All tests are performed at the smallest U-NII Channel Bandwidth (802.11a) as specified in FCC 06-96 (§ 8.3 section 18). However for U-NII Detection Bandwidth test & Statistical Performance Check test, all Channel Bandwidths are tested (802.11a, 802.11n HT20, 802.11n HT40 & 802.11ac VHT80)
- -All test are performed at 5500MHz in accordance with FCC 06-96 (§7.8) which specified that one frequency will be chosen from the operating channel of the UUT within the 5250-5350MHz or 5470-5725MHz bands.

2.3. EQUIPEMENT LABELLING



2.4. EQUIPMENT MODIFICATIONS

Modification:

In order to monitor the UUT behavior for radar detection and to set the UUT parameters, a serial cable is plugged between the UUT & the Laptop 3



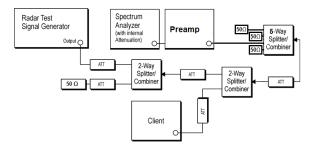
3. DFS DETECTION THRESHOLDS DETERMINATION & REFERENCE NOISE LEVEL

3.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH

Date of test : 2013/07/22 Ambient temperature : 28°C Relative humidity : 46%

3.2. TEST SETUP



Spectrum Analyzer Setting:

Center frequency= Center of emission spectrum

Span= 0

Amplitude= Sufficient to observe the signal amplitude

RBW = 3MHz

VBW= 3MHz

Sweep Time= Sufficient to capture the Radar Test Signal

Sweep= Single Sweep

Sweep Point= 5000 for Radar Test Signal Calibration & 32000 for Reference Noise Level

Trace= Clear/Write



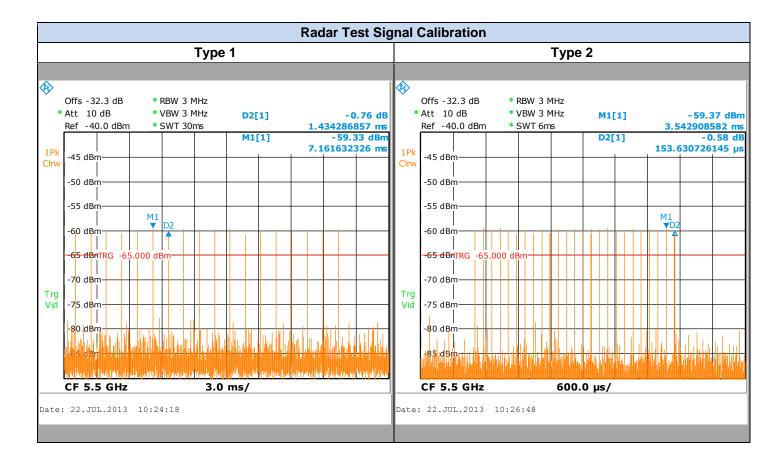
Photograph for Test Signal Level Calibration



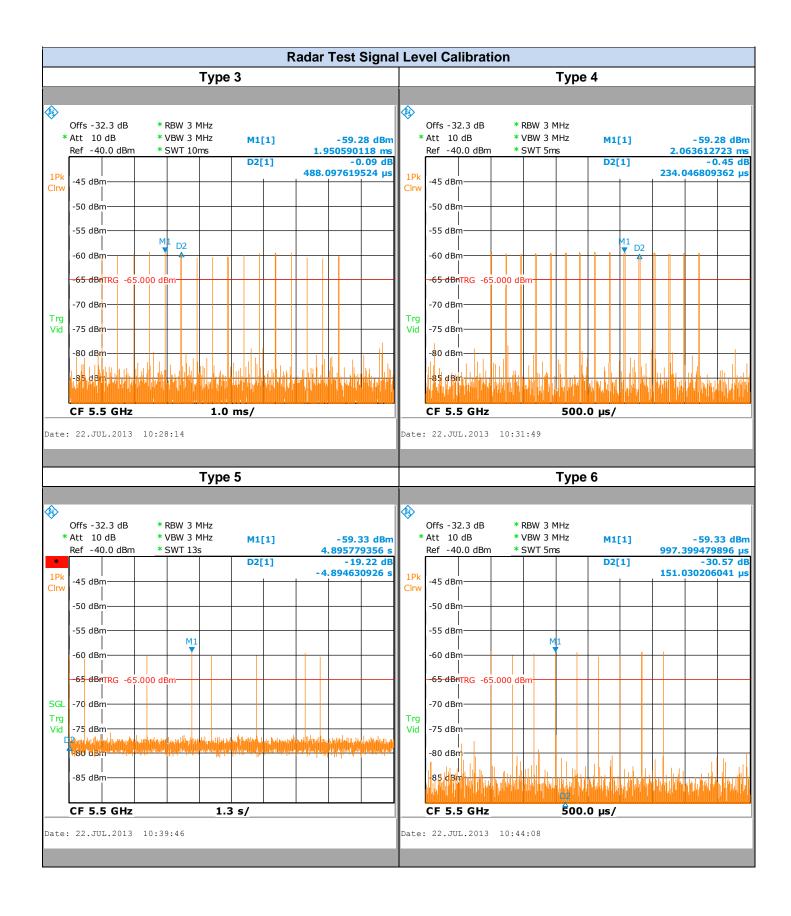
3.3. GRAPHICS & DFS DETECTION THRESHOLDS DETERMINATION

Frequency	5500MHz
Applicable Level (dBm)	-64 (Note 4)
Lowest Antenna Gain (dBi)	3,7
Additional Level (dB)	1
DFS Detection Thresholds (dBm)	-59,3

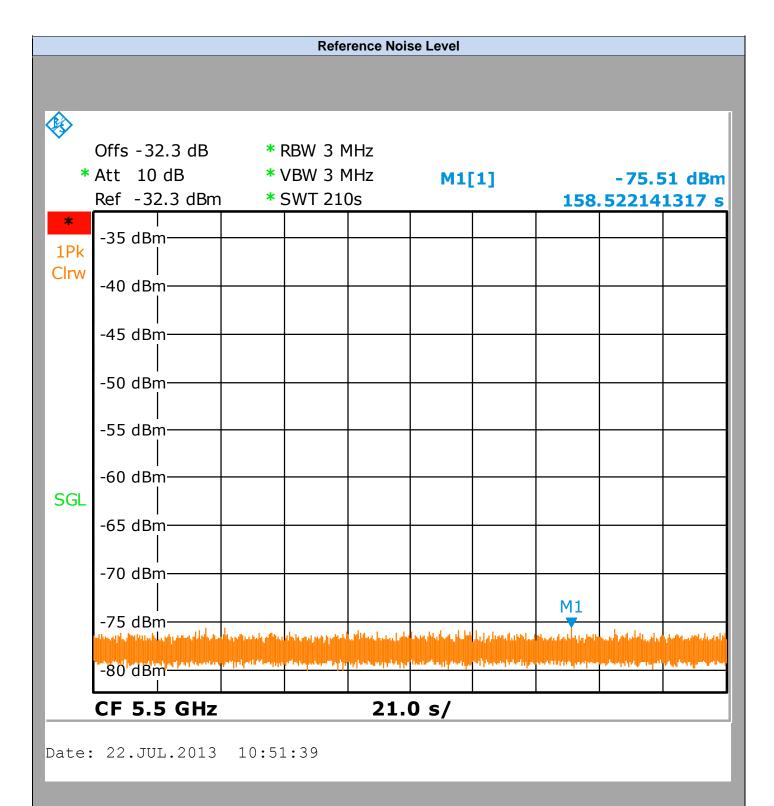
(Note 4): Maximum Transmit Power below 200mW













4. U-NII DETECTION BANDWIDTH

4.1. TEST CONDITIONS

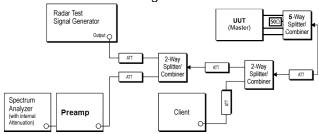
Test performed by : Stéphane PHOUDIAH

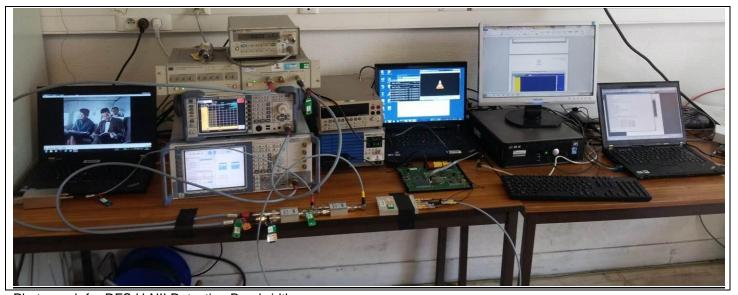
Date of test : 2013/07/22

Ambient temperature : 28°C Relative humidity : 46%

4.2. TEST SETUP

The Equipment Under Test installed on a table. Measurement is performed on the UUT conducted access. The product has been tested according the FCC 06-96. The Radar Test Signal 1 is used for this test.





Photograph for DFS U-NII Detection Bandwidth



4.3. SAMPLE DATASHEET & RESULTS

	Cha	nnel	7	5500	MHz						
802.11a				U-1	VII De	etecti	on B	andw	ridth		
		Trial: Detection=1 & No Detection=0									
Radar Frequency (MHz)	Trial 1										
5490	1	1	1	1	1	1	1	1	1	1	100
5491	1	0	1	1	1	1	1	1	1	1	90
5492	1	1	1	1	1	1	1	0	1	1	90
FL=5493	1	1	1	1	1	1	1	1	1	1	100
5494	1	1	1	1	1	1	1	1	1	1	100
5495	1	1	1	1	1	1	1	1	1	1	100
5496	1	1	1	1	1	1	1	1	0	1	90
5497	1	0	1	1	1	1	1	1	1	1	90
5498	1	1	1	1	1	1	1	0	1	1	90
5499	1	1	1	1	1	1	1	1	1	1	100
5500	1	1	1	1	1	1	1	1	0	1	90
5501	1	1	1	1	0	1	1	1	1	1	90
5502	1	1	1	1	0	1	1	1	1	1	90
5503	1	1	1	1	1	1	1	1	1	1	100
5504	1	1	1	1	1	1	1	1	1	1	100
5505	1	1	0	1	1	1	1	1	1	1	90
5506	1	1	1	1	1	1	0	1	1	1	90
FH=5507	1	1	1	1	1	1	1	1	1	1	100
5508	1	1	1	1	1	1	1	1	1	1	100
5509	1	1	1	1	1	1	1	1	1	1	100
5510	1	1	1	1	1	1	1	1	1	1	100



	Cha	nnel	C7	5500	MHz						
802.11n HT20		U-NII Detection Bandwidth Trial: Detection=1 & No Detection=0									
Radar Frequency (MHz)	Trial 1	ial Trial Trial Trial Trial Trial Trial Trial Trial Trial Detection									Detection (%)
5490	1	1	1	1	1	1	1	1	0	1	90
5491	1	1	1	1	1	1	1	1	0	1	90
5492	1	1	1	1	0	1	1	1	1	1	90
FL=5493	1	1	1	1	1	1	1	1	1	1	100
5494	1	1	1	1	1	1	1	1	1	1	100
5495	1	1	1	1	1	1	1	1	1	1	100
5496	1	1	1	1	1	1	1	1	1	1	100
5497	1	1	1	1	0	1	1	1	1	1	90
5498	1	1	1	1	1	1	1	1	1	1	100
5499	1	1	1	1	1	1	1	0	1	1	90
5500	1	1	1	1	1	1	1	1	0	1	90
5501	1	1	1	1	1	1	1	1	1	1	100
5502	1	0	1	1	1	1	1	1	1	1	90
5503	1	1	0	1	1	1	1	1	1	1	90
5504	1	1	1	1	1	1	1	1	1	1	100
5505	1	1	1	1	1	1	1	1	1	1	100
5506	1	1	1	1	1	1	1	1	1	1	100
5507	1	0	1	1	1	1	1	1	1	1	90
FH=5508	1	1	1	1	1	1	1	1	1	1	100
5509	1	1	1	1	1	1	1	1	1	1	100
5510	1	1	1	1	1	1	1	1	1	1	100



	Cha	nnel	14	5510	MHz						
000 44° LIT40				<u> </u>	<u> </u>	oto ot:	00 D	000	رز طعام		
802.11n HT40				U-ľ	שם וווי	etecti	on B	andw	natn		
				Tı	rial: Dete	ection=1	& No D	etection	n=0		
Radar Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection (%)
5490	0	0	0	0	0	0	0	1	1	0	20
5491	1	1	1	1	1	1	1	1	1	1	100
5492	1	1	1	1	1	1	1	1	1	1	100
5493	1	1	1	1	1	1	1	1	1	1	100
5494	1	1	1	1	1	1	1	1	1	1	100
FL=5495	1	1	1	1	1	1	1	1	1	1	100
5496	1	1	0	1	1	1	1	1	1	1	90
5497	1	1	1	1	1	1	1	1	1	1	100
5498	1	1	1	1	1	1	1	1	1	1	100
5499	1	1	1	1	1	1	1	1	1	1	100
5500	1	1	1	1	1	1	1	1	1	1	100
5501	1	1	1	1	1	1	1	1	1	1	100
5502	1	1	1	1	1	1	1	1	1	1	100
5503	1	1	1	1	1	1	1	1	1	1	100
5504	1	1	1	1	1	1	1	1	1	1	100
5505	1	0	1	1	1	1	1	1	1	1	90
5506	1	1	1	1	1	1	1	1	1	1	100
5507	1	1	1	1	1	1	1	1	1	1	100
5508	1	1	1	1	1	1	0	1	1	1	90
5509	1	1	1	1	0	1	1	1	1	1	90
5510	1	1	1	1	1	1	1	1	0	1	90
5511	1	0	1	1	1	1	1	1	1	1	90
5512	1	1	1	1	1	1	1	1	1	1	100
5513	1	1	0	1	1	1	1	1	1	1	90
5514	1	1	1	1	1	1	1	1	1	1	100
5515	1	1	1	1	1	1	1	1	1	1	100
5516	1	1	1	1	1	1	1	1	1	1	100
5517	1	1	1	1	1	1	1	1	1	1	100
5518	1	1	1	1	1	1	1	1	1	1	100
5519	1	1	1	1	1	1	1	0	1	1	90
5520	1	1	1	1	1	1	1	1	0	1	90
5521	1	1	1	1	0	1	1	1	1	1	90
5522	1	1	1	1	1	1	1	1	1	1	100
5523	1	1	1	1	1	1	1	1	1	1	100
5524	1	0	1	1	1	1	1	1	1	1	90
FH=5525	1	1	1	1	1	1	1	1	1	1	100
5526	1	1	1	1	1	1	1	1	1	1	100
5527	1	1	1	1	1	1	1	1	1	1	100
5528	1	1	1	1	1	1	1	1	1	1	100
5529	1	1	1	1	1	1	1	1	1	1	100
5530	0	0	0	0	0	0	0	0	0	0	0



	Cha	nnel	19	5530	MHz						
000 44 \\											
802.11ac VHT80				U-N	III De	etecti	on B	andw	/idth		
				Tr	ial: Dete	oction_1	& No F	Octoction	2-0		
	Trial	Trial	Trial	Trial	Trial	Trial	Trial	Trial	Trial	Trial	Detection
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	(%)
5490	1	1	1	1	1	1	1	1	1	1	100
5491	1	1	1	1	1	1	1	1	1	1	100
5492	1	1	0	1	1	1	1	1	1	1	90
5493	1	1	1	1	1	1	1	1	1	1	100
5494	1	0	1	1	1	1	1	1	1	1	90
5495	1	1	1	1	1	1	1	1	1	1	100
5496	1	1	1	1	1	1	1	1	1	1	100
5497	1	1	1	1	1	1	1	1	1	1	100
5498	1	1	1	1	1	1	1	1	1	1	100
5499	1	1	1	1	1	1	1	1	1	1	100
FL=5500	1	1	1	1	1	1	1	1	1	1	100
5501	1	1	1	1	1	1	1	1	1	1	100
5502	1	1	1	1	1	1	1	1	1	1	100
5503	1	1	1	0	1	1	1	1	1	1	90
5504	1	1	1	1	1	1	1	1	1	1	100
5505	1	1	1	1	1	1	1	1	1	1	100
5506	1	1	1	1	1	1	1	1	1	1	100
5507	1	1	1	1	1	1	1	1	0	1	90
5508	1	1	0	1	1	1	1	1	1	1	90
5509	1	1	1	1	1	1	1	1	1	1	100
5510	1	1	0	1	1	1	1	1	1	1	90
5511	1	1	1	0	1	1	1	1	1	1	90
5512	1	1	1	1	1	1	1	1	0	1	90
5513	1	1	1	1	1	1	1	1	0	1	90
5514	1	1	1	1	1	0	1	1	1	1	90
5515	1	1	1	1	1	1	1	1	1	1	100
5516	1	1	1	1	1	1	1	1	1	1	100
5517	1	1	0	1	1	1	1	1	1	1	90
5518	1	1	1	1	1	1	1	1	1	1	100
5519	1	1	1	1	1	1	1	1	1	1	100
5520	1	0	1	1	1	1	1	1	1	1	90
5521	1	1	1	1	1	1	1	1	1	1	100
5522	1	1	1	1	1	1	1	1	1	1	100
5523	1	1	1	0	1	1	1	1	1	1	90
5524	1	1	1	1	1	0	1	1	1	1	90
5525	1	1	1	1	1	1	1	1	1	1	100
5526	1	0	1	1	1	1	1	1	1	1	90
5527	1	1	1	1	1	1	1	1	0	1	90
5528	1	1	1	1	1	1	1	0	1	1	90
5529	1	1	1	1	1	1	1	1	1	1	100
5530	1	1	0	1	1	1	1	1	1	1	90
5531	1	1	1	1	0	1	1	1	1	1	90
5532	1	1	1	1	1	1	1	1	1	1	100
5533	1	1	1	1	1	1	1	1	1	1	100
5534	1	0	1	1	1	1	1	1	1	1	90
5535	1	1	1	1	1	1	1	1	0	1	90



5536	1	1	0	1	1	1	1	1	1	1	90
5537	1	1	1	1	1	1	1	1	1	1	100
5538	1	1	1	1	1	1	1	1	1	1	100
5539	1	1	1	1	1	1	1	1	1	1	100
5540	1	1	1	1	1	1	1	1	1	1	100
5541	1	0	1	1	1	1	1	1	1	1	90
5542	1	1	1	1	1	1	1	1	1	1	100
5543	1	1	1	1	1	1	1	0	1	1	90
5544	1	1	1	1	1	0	1	1	1	1	90
5545	1	1	0	1	1	1	1	1	1	1	90
5546	1	1	1	1	1	1	1	1	1	1	100
5547	1	1	1	1	1	1	1	1	0	1	90
5548	1	1	1	1	1	1	1	1	1	1	100
5549	1	1	1	1	1	1	1	0	1	1	90
5550	1	1	1	1	1	1	1	1	1	1	100
5551	1	1	1	1	1	1	1	1	1	1	100
5552	1	1	1	1	1	1	1	1	0	1	90
5553	1	1	1	1	1	1	1	1	1	1	100
5554	1	1	1	1	1	1	1	1	1	1	100
5555	1	1	1	1	1	0	1	1	1	1	90
5556	1	1	1	1	1	1	1	1	0	1	90
5557	1	1	1	1	1	1	1	1	1	1	100
5558	1	1	1	1	1	1	1	1	1	1	100
5559	1	1	1	1	1	1	1	1	1	1	100
5560	1	0	1	1	1	1	1	1	1	1	90
FH=5561	1	1	1	1	1	1	1	1	1	1	100
5562	1	1	0	1	1	1	1	1	1	1	90
5563	1	1	1	1	0	1	1	1	1	1	90
5564	1	1	1	1	1	1	1	1	1	1	100
5565	1	1	1	0	1	1	1	1	1	1	90
5566	1	1	1	0	1	1	1	1	1	1	90
5567	1	1	1	1	1	1	1	1	1	1	100
5568	1	1	1	1	1	1	1	1	1	1	100
5569	1	1	1	1	1	1	1	1	1	1	100
5570	1	1	1	1	1	1	1	1	1	1	100

Radar Test Signal 1	802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Channel	C7	C7	C14	C19
U-NII Detection Bandwidth(MHz)	Above 13,46	Above 14.37	Above 29.7	Above 60,99
U-NII Detection Bandwidth (%)	Above 100	Above 100	Above100	Above 100
80% of Occupied Bandwidth(MHz)	13,46	14,37	29,7	60,99
99% Occupied Bandwidth(MHz)	16,82 (Note1)	17,96 (Note1)	37,12 (Note1)	76,24 (Note1)

Note 1: Measured in test report 122014-644470C

Result: PASS

U-NII Detection Bandwidth Limit:

Minimum 80% of the U-NII 99% transmission power bandwidth



5. CHANNEL AVAILABILITY CHECK

5.1. **TEST CONDITIONS**

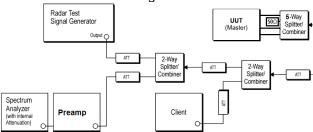
Test performed by : Stéphane PHOUDIAH

: 2013/07/24 Date of test : 27°C Ambient temperature

Relative humidity : 48%

5.2. **TEST SETUP**

The Equipment Under Test installed on a table. Measurement is performed on the UUT conducted access. The product has been tested according the FCC 06-96. The Radar Test Signal 1 is used for this test.



Spectrum Analyzer Setting:

Center frequency= Center of emission spectrum

Amplitude= Sufficient to observe the signal amplitude

RBW= 3MHz

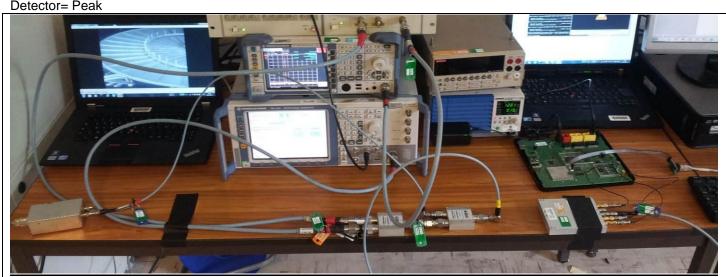
VBW= 3MHz

Sweep Time= 210s for CAC Time, 270s for Radar Burst at the Beginning of the Channel Availability Check Time & 340s for Radar Burst at the End of the Channel Availability Check Time

Sweep= Single Sweep Sweep Point= 32000

Trace= Clear/Write

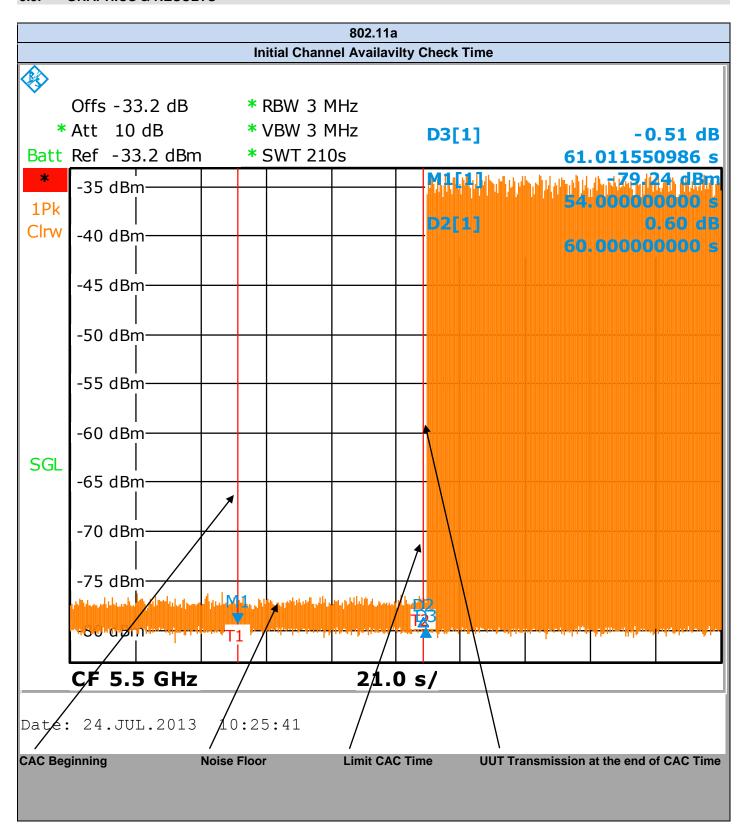
Detector= Peak



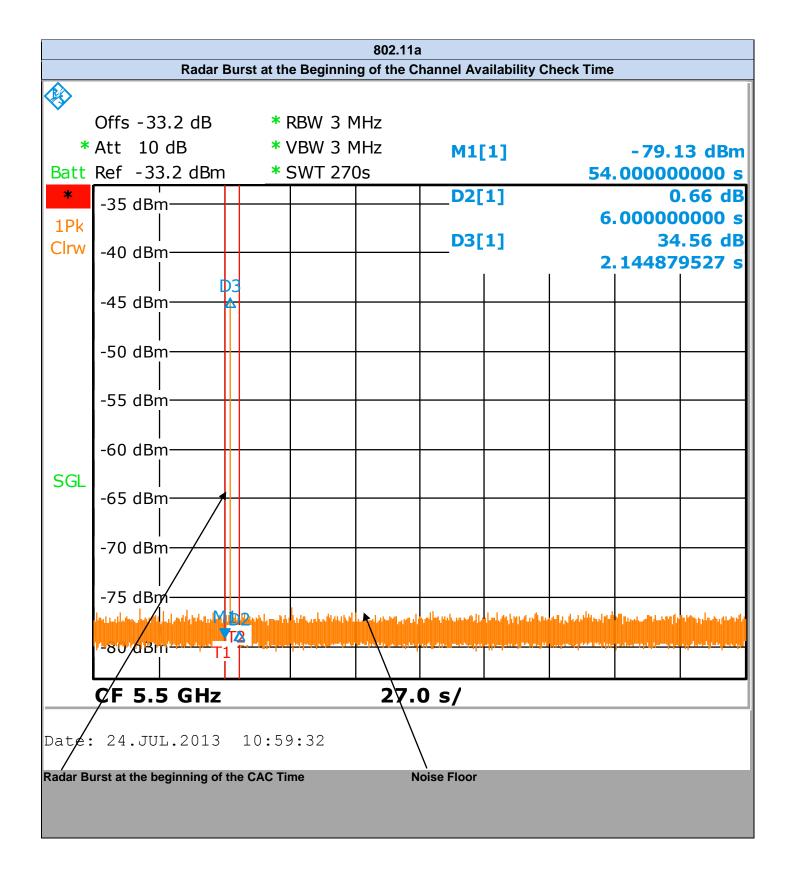
Photograph for DFS Channel Availability Check



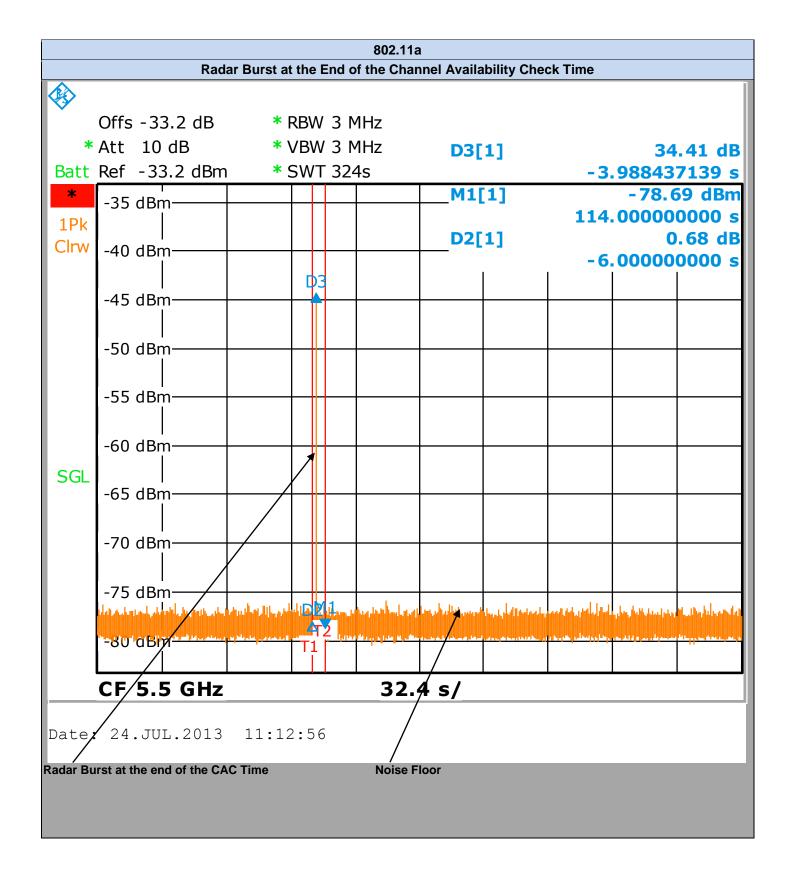
5.3. GRAPHICS & RESULTS













Radar Test Signal 1	802.11a
Channel	C7
Channel Availability Check Time (s)	61,01
Channel Availability Check at the beginning of Channel Availability Check time	Detected (1)
Channel Availability Check at the end of Channel Availability Check time	Detected (1)

(1): At the radar detection, the UUT switches to another channel. No transmission has been detected during the observation time after radar detection.

Result: PASS

Channel Availability Check Time Limit:

More than 60 seconds



6. STATISTICAL PERFORMANCE CHECK

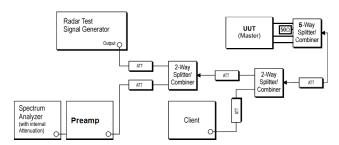
6.1. TEST CONDITIONS

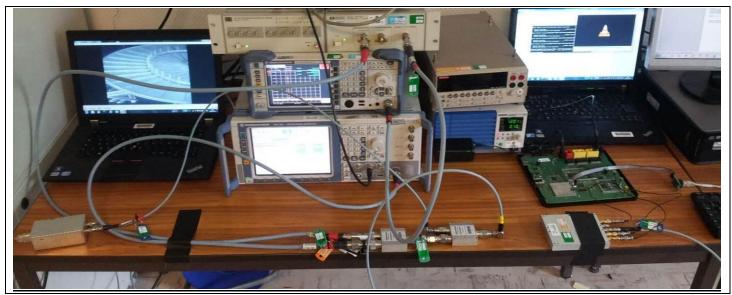
Test performed by : Stéphane PHOUDIAH

Date of test : 2013/07/23 Ambient temperature : 29°C Relative humidity : 45%

6.2. TEST SETUP

The Equipment Under Test installed on a table. Measurement is performed on the UUT conducted access. The product has been tested according the FCC 06-96. The Radar Test Signals 1 to 6 are used for this test.





Photograph for DFS Statistical Performance Check



6.3. SAMPLE DATASHEET & RESULTS

RAD	AR TYPE	1		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (μs)	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	18	1	1428	1	1	1	1
2	18	1	1428	1	1	1	1
3	18	1	1428	1	1	1	1
4	18	1	1428	1	1	1	1
5	18	1	1428	1	1	1	1
6	18	1	1428	1	1	1	1
7	18	1	1428	1	1	1	1
8	18	1	1428	1	1	1	1
9	18	1	1428	1	1	1	1
10	18	1	1428	1	1	1	1
11	18	1	1428	1	1	1	1
12	18	1	1428	1	1	1	1
13	18	1	1428	1	1	1	1
14	18	1	1428	1	1	1	1
15	18	1	1428	1	1	1	1
16	18	1	1428	1	1	1	1
17	18	1	1428	1	1	1	1
18	18	1	1428	1	1	1	1
19	18	1	1428	1	1	1	1
20	18	1	1428	1	1	1	1
21	18	1	1428	1	1	1	1
22	18	1	1428	1	1	1	1
23	18	1	1428	1	1	1	1
24	18	1	1428	1	0	1	1
25	18	1	1428	1	1	1	1
26	18	1	1428	1	1	1	1
27	18	1	1428	1	1	1	1
28	18	1	1428	1	1	1	1
29	18	1	1428	1	1	1	1
30	30 18 1 1428			1	1	1	1
Statistical Performance Check (%)				100,0	96,7	100,0	100,0



RAD	AR TYPE	2		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (μs)	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	27	3	206	1	1	1	1
2	25	1,9	154	1	1	1	1
3	25	1,6	171	1	1	1	1
4	27	4,6	222	1	1	1	1
5	26	3,4	150	1	1	1	1
6	23	4,1	165	1	1	1	1
7	23	3,7	194	1	1	1	1
8	26	4,1	219	1	1	1	1
9	29	3,9	212	1	1	1	1
10	24	1,6	207	1	1	1	1
11	25	2,1	194	1	1	1	1
12	28	2,3	185	1	1	1	1
13	25	1,8	221	1	1	1	1
14	28	1,5	228	1	1	1	1
15	28	1,9	183	1	1	1	1
16	28	2,2	163	1	1	1	1
17	24	4,7	178	1	1	1	1
18	27	3,3	165	1	1	1	1
19	26	3,3	153	1	1	1	1
20	26	5	169	1	1	1	1
21	24	1,1	209	1	1	1	1
22	28	3,1	154	1	1	1	1
23	27	2,7	222	1	1	1	1
24	23	2,2	211	1	1	1	1
25	28	2,6	172	1	1	1	1
26	24	1,9	152	1	1	1	1
27	28	4,2	157	1	1	1	1
28	27	1,5	227	1	1	1	1
29	27	3,3	164	1	1	1	1
30	26	1,6	170	1	1	1	1
Statistic	cal Performan	· · · · · · · · · · · · · · · · · · ·		100,0	100,0	100,0	100,0



RADA	AR TYPE	3		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (μs)	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	18	6,2	483	1	1	1	1
2	16	6,6	487	1	1	1	1
3	17	9,2	441	1	1	1	1
4	18	9	283	1	1	1	1
5	16	9,7	391	1	1	1	1
6	16	6,3	419	1	1	1	1
7	16	7,3	315	1	1	1	1
8	16	8,8	494	1	1	1	1
9	18	8,3	277	1	1	1	1
10	18	6,1	452	1	1	1	1
11	16	6,8	274	1	1	1	1
12	17	9,8	488	1	1	1	1
13	17	9,8	387	1	1	1	1
14	16	9,5	385	1	1	1	1
15	17	9,2	372	1	1	1	1
16	18	7,2	337	1	1	1	1
17	17	7,1	465	1	1	1	1
18	17	8,9	258	1	1	1	1
19	16	8	292	1	1	1	1
20	17	6,1	332	1	1	1	1
21	17	10	477	1	1	1	1
22	17	6,7	468	1	1	1	1
23	17	8,9	299	1	1	1	1
24	18	7,7	383	1	1	1	1
25	17	6,7	429	1	1	1	1
26	17	8,2	490	1	1	1	1
27	17	7,6	421	1	1	1	1
28	18	6,4	387	1	1	1	1
29	17	6,5	258	1	1	1	1
30	16	6,3	357	1	1	1	1
Statistic	al Performan			100,0	100,0	100,0	100,0



RAD	RADAR TYPE 4			802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	16	17,4	252	1	1	1	1
2	12	14,1	229	1	1	1	1
3	15	16,5	229	1	1	1	1
4	15	17,4	270	1	1	1	1
5	15	16,9	360	1	1	1	1
6	12	17,1	362	1	1	1	1
7	14	12,1	296	1	1	1	1
8	12	12	482	1	1	1	1
9	14	17,9	220	1	1	1	1
10	15	13,1	391	1	1	1	1
11	12	13,7	396	1	1	1	1
12	13	13	355	1	1	1	1
13	15	16,9	405	1	1	1	1
14	12	16,1	241	1	1	1	1
15	13	19,8	388	1	1	1	1
16	14	17	386	1	1	1	1
17	12	12,7	497	1	1	1	1
18	15	14,2	432	1	1	1	1
19	14	11,4	320	1	1	1	1
20	12	16,9	478	1	1	1	1
21	15	13,6	314	1	1	1	1
22	12	20	467	1	1	1	1
23	16	13,8	398	1	1	1	1
24	16	19,8	459	1	1	1	1
25	15	17,4	399	1	1	1	1
26	15	16,9	226	1	1	1	1
27	13	16,9	345	1	1	1	1
28	12	13,7	404	1	1	1	1
29	15	15	295	1	1	1	1
30	15	14,5	313	1	1	1	1
Statistic	cal Performan	ce Check (%)	100,0	100,0	100,0	100,0



RAD	AR TYPE 5	802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	See Annex	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	FCC0696-T5-08-TRIAL-1	1	1	1	1
2	FCC0696-T5-09-TRIAL-2	1	1	1	1
3	FCC0696-T5-10-TRIAL-3	1	1	1	1
4	FCC0696-T5-11-TRIAL-4	1	1	1	1
5	FCC0696-T5-12-TRIAL-5	1	1	1	1
6	FCC0696-T5-13-TRIAL-6	1	1	1	1
7	FCC0696-T5-14-TRIAL-7	1	1	1	1
8	FCC0696-T5-15-TRIAL-8	1	1	1	1
9	FCC0696-T5-16-TRIAL-9	1	1	1	1
10	FCC0696-T5-17-TRIAL-10	1	1	1	1
11	FCC0696-T5-18-TRIAL-11	1	1	1	1
12	FCC0696-T5-19-TRIAL-12	1	1	1	1
13	FCC0696-T5-20-TRIAL-13	1	1	1	1
14	FCC0696-T5-08-TRIAL-14	1	1	1	1
15	FCC0696-T5-09-TRIAL-15	1	1	1	1
16	FCC0696-T5-10-TRIAL-16	1	1	1	1
17	FCC0696-T5-11-TRIAL-17	1	1	1	1
18	FCC0696-T5-12-TRIAL-18	1	1	1	1
19	FCC0696-T5-08-TRIAL-19	1	1	1	1
20	FCC0696-T5-09-TRIAL-20	1	1	1	1
21	FCC0696-T5-10-TRIAL-21	1	1	1	1
22	FCC0696-T5-11-TRIAL-22	1	1	1	1
23	FCC0696-T5-12-TRIAL-23	1	1	1	1
24	FCC0696-T5-13-TRIAL-24	1	1	1	1
25	FCC0696-T5-14-TRIAL-25	1	1	1	1
26	FCC0696-T5-15-TRIAL-26	1	1	1	1
27	FCC0696-T5-16-TRIAL-27	1	1	1	1
28	FCC0696-T5-17-TRIAL-28	1	1	1	1
29	FCC0696-T5-18-TRIAL-29	1	1	1	1
30	FCC0696-T5-19-TRIAL-30	1	1	1	1
Statist	ical Performance Check (%)	100,0	100,0	100,0	100,0



RAE	OAR TYPE 6	802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Trial #	http://ntiacsd.ntia.doc.gov/dfs/HopFreqInRlanBW.txt	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0	Detection=1 & No Detection=0
1	Burst 0	1	1	1	1
2	Burst 1	1	1	1	1
3	Burst 2	1	1	1	1
4	Burst 3	1	1	1	1
5	Burst 4	1	1	1	1
6	Burst 5	1	1	1	1
7	Burst 6	1	1	1	1
8	Burst 7	1	1	1	1
9	Burst 8	1	1	1	1
10	Burst 9	1	1	1	1
11	Burst 10	1	1	1	1
12	Burst 11	1	1	1	1
13	Burst 12	1	1	1	1
14	Burst 13	1	1	1	1
15	Burst 14	1	1	1	1
16	Burst 15	1	1	1	1
17	Burst 16	1	1	1	1
18	Burst 17	1	1	1	1
19	Burst 18	1	1	1	1
20	Burst 19	1	1	1	1
21	Burst 20	1	1	1	1
22	Burst 21	1	1	1	1
23	Burst 22	1	1	1	1
24	Burst 23	1	1	1	1
25	Burst 24	1	1	1	1
26	Burst 25	1	1	1	1
27	Burst 26	1	1	1	1
28	Burst 27	1	1	1	1
29	Burst 28	1	1	1	1
30	Burst 29	1	1	1	1
Statis	tical Performance Check (%)	100,0	100,0	100,0	100,0



Short Pulse Radar	802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Channel	C7	C7	C14	C19
Detection Radar Type 1 (%)	100	96,7	100	100
Detection Radar Type 2 (%)	100	100	100	100
Detection Radar Type 3 (%)	100	100	100	100
Detection Radar Type 4 (%)	100	100	100	100
Aggregate Radar Type 1-4 (%)	100	99,175	100	100

Long Pulse Radar	802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80
Channel	C7	C7	C14	C19
Detection Radar Type 5 (%)	100	100	100	100

Frequency Hopping Radar	802.11a	802.11n HT20	802.11n HT40	802.11n VHT80
Channel	C7	C7	C14	C19
Detection Radar Type 6 (%)	100	100	100	100

Result: PASS

Statistical Performance Check Limit:

	Short Pulse Radar Test Waveform						
Radar Type	Pulse Width (µsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Sucessful Detection	Minimum Number of Trials		
1	1	1428	18	60%	30		
2	2 1-5		23-29	60%	30		
3	6-10	200-500 16-18	16-18	60%	30		
4	11-20	200-500	12-16	60%	30		
	Aggregate Rad	80%	120				

Long Pulse Radar Test Waveform							
Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	Number of Pulses	Minimum Percentage of Sucessful Detection	Minimum Number of Trials		
5	50-100	5-20	1-3	80%	30		

Frequency Hopping Radar Test Waveform							
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Sucessful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30



7. CHANNEL MOVE TIME & CLOSING TRANSMISSION TIME

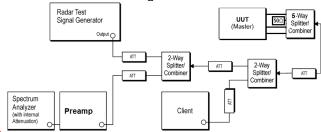
7.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH Date of test : 2013/07/24 & 2013/07/25

Ambient temperature : 28°C Relative humidity : 42%

7.2. TEST SETUP

The Equipment Under Test installed on a table. Measurement is performed on the UUT conducted access. The product has been tested according the FCC 06-96. The Radar Test Signals 1 & 5 are used for this test.



Spectrum Analyzer Setting:

Center frequency= Center of emission spectrum

Span= 0

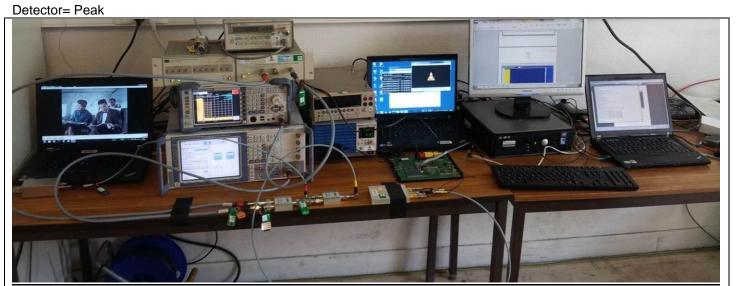
Amplitude= Sufficient to observe the signal amplitude

RBW= 3MHz

VBW= 3MHz

Sweep Time= 20s for Radar Test Signal 1 & 30s for Radar Test Signal 5

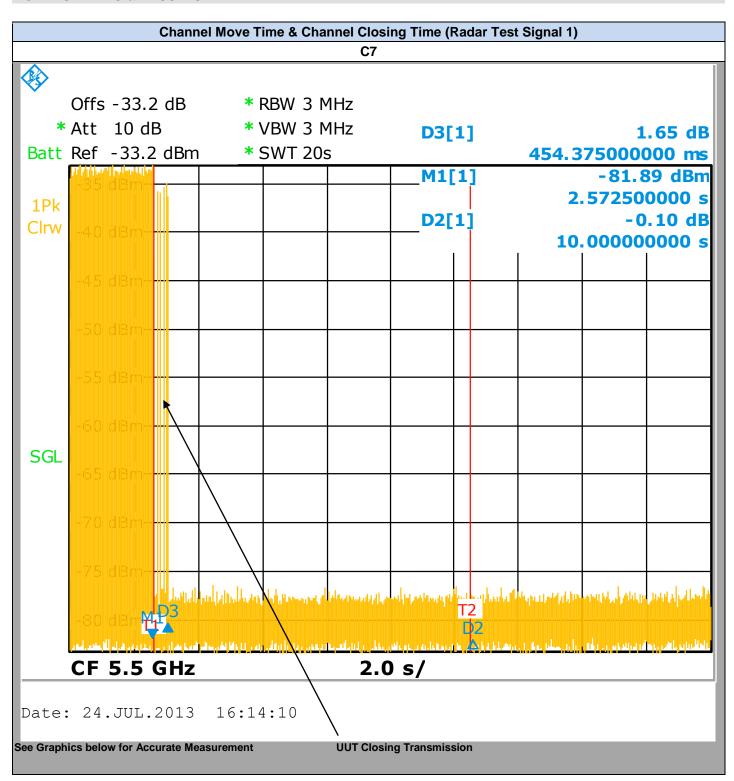
Sweep= Single Sweep Sweep Point= 32000 Trace= Clear/Write



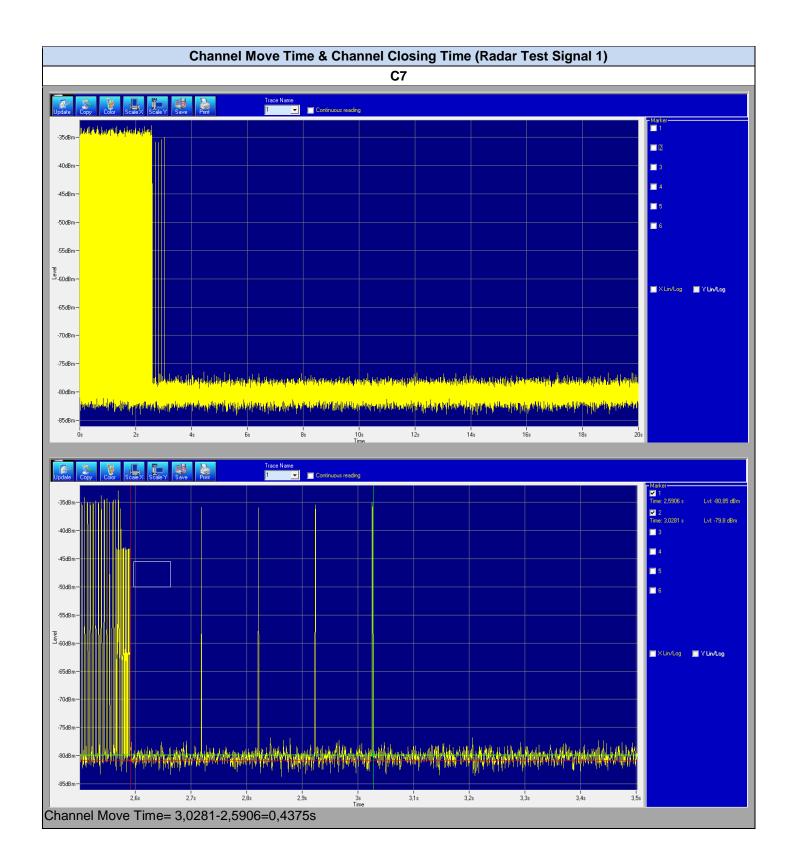
Photograph for DFS Channel Move Time & Closing Transmission Time



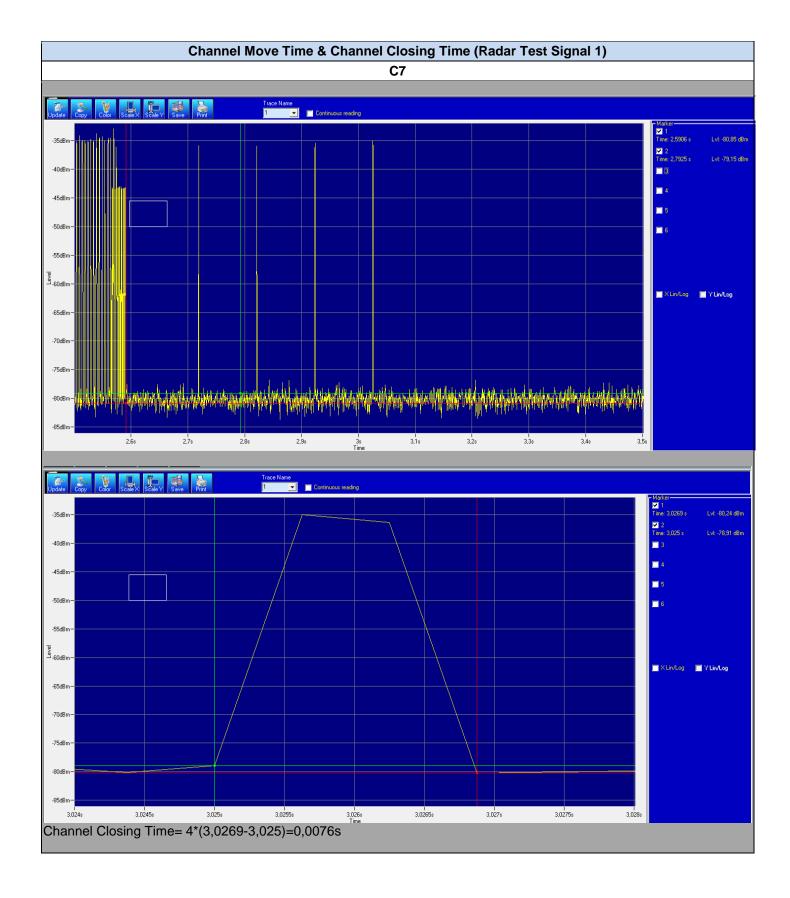
7.3. GRAPHIC & RESULTS



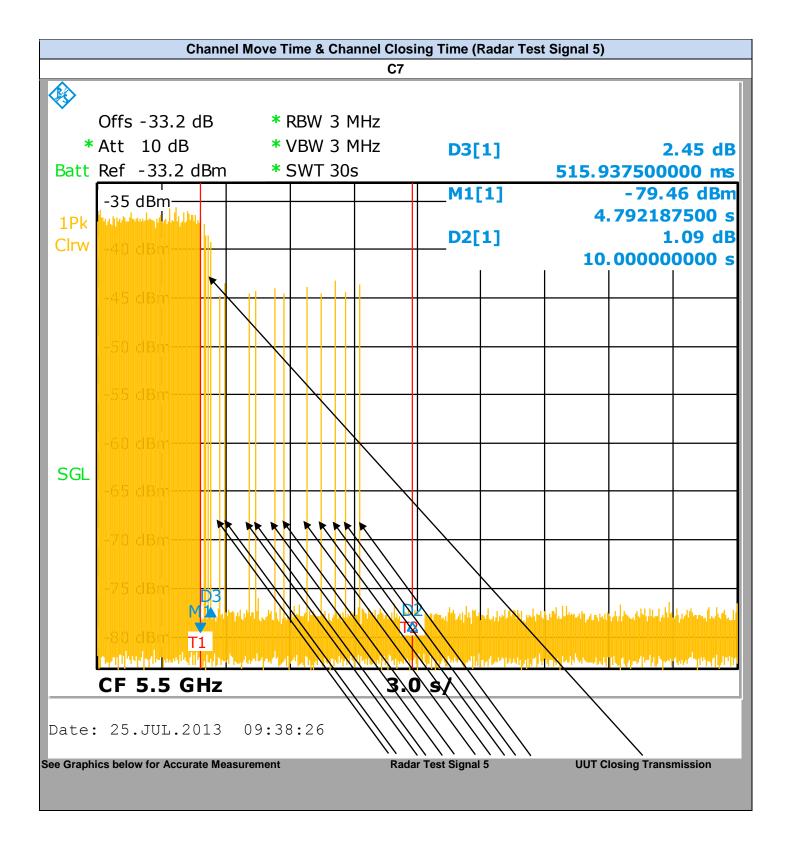




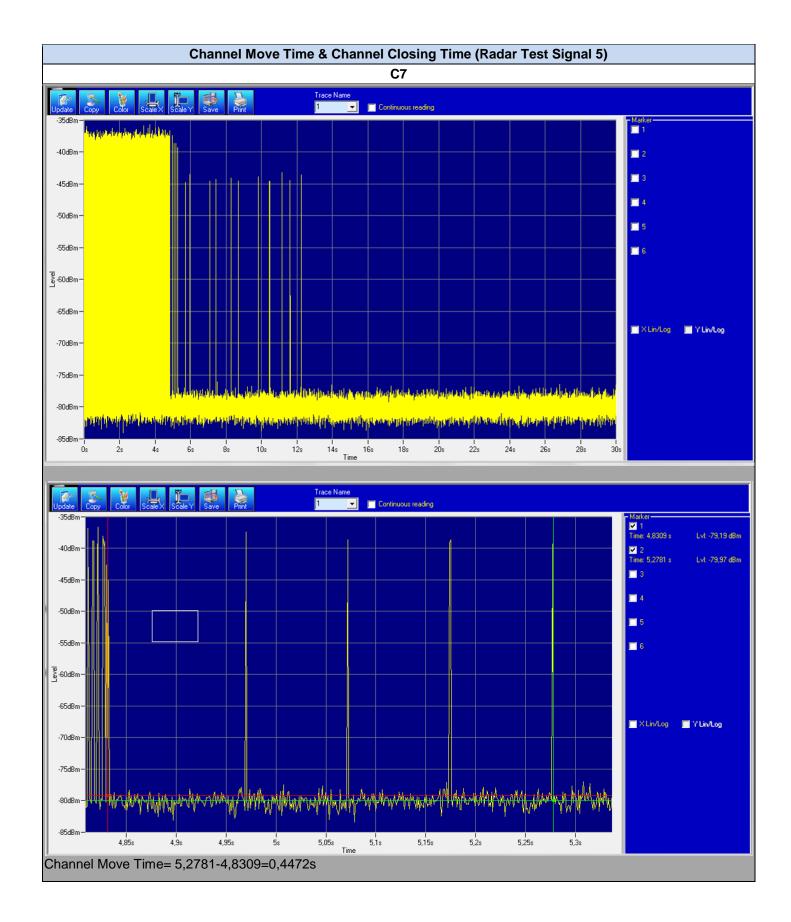




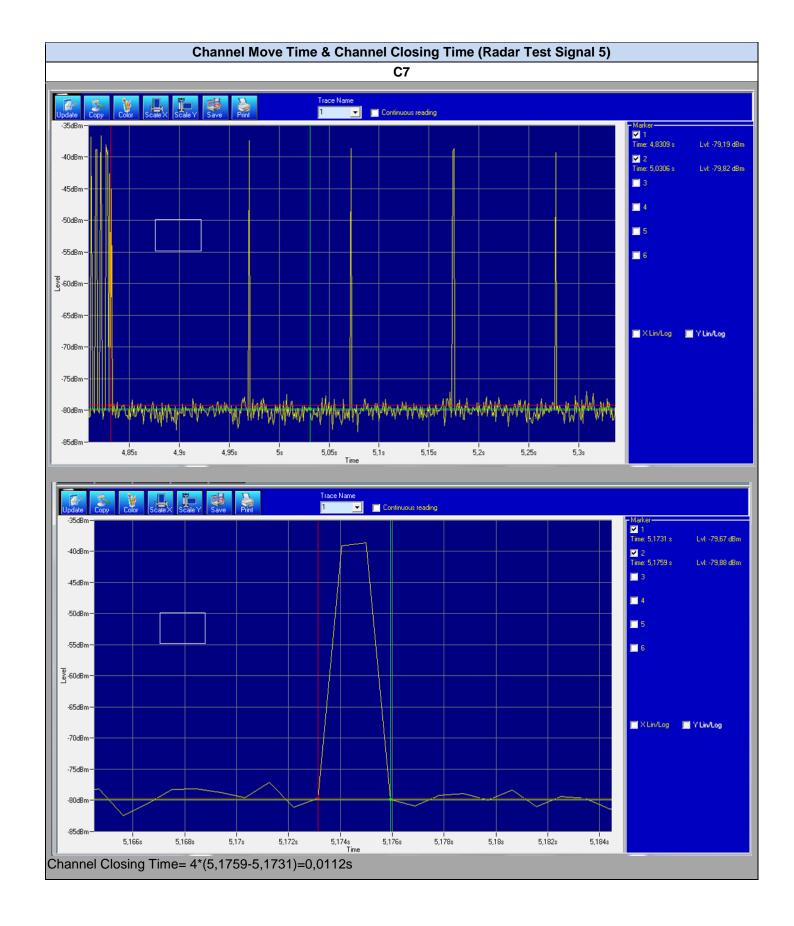














Radar Test Signal 1	802.11a
Channel	C7
Channel Closing Transmission Time (s)	0,0076
Channel Move Time (s)	0,4375

Radar Test Signal 5	802.11a
Channel	C7
Channel Closing Transmission Time (s)	0,0112
Channel Move Time (s)	0,4472

Result: PASS

Channel Closing Transmission Time Limit: Maximum 0,26s

Channel Move Time Limit:

Maximum 10 seconds



8. Non-Occupancy Period

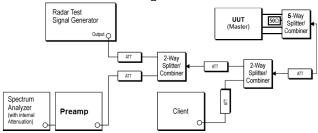
8.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH

Date of test : 2013/07/24 Ambient temperature : 28°C Relative humidity : 42%

8.2. TEST SETUP

The Equipment Under Test installed on a table. Measurement is performed on the UUT conducted access. The product has been tested according the FCC 06-96. The Radar Test Signal 1 is used for this test.



Spectrum Analyzer Setting:

Center frequency= Center of emission spectrum

Span= 0

Amplitude= Sufficient to observe the signal amplitude

RBW= 3MHz

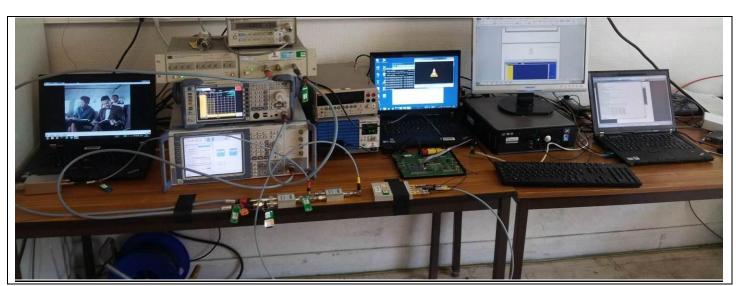
VBW= 3MHz

Sweep Time= 2000s

Sweep= Single Sweep

Sweep Point= 32000

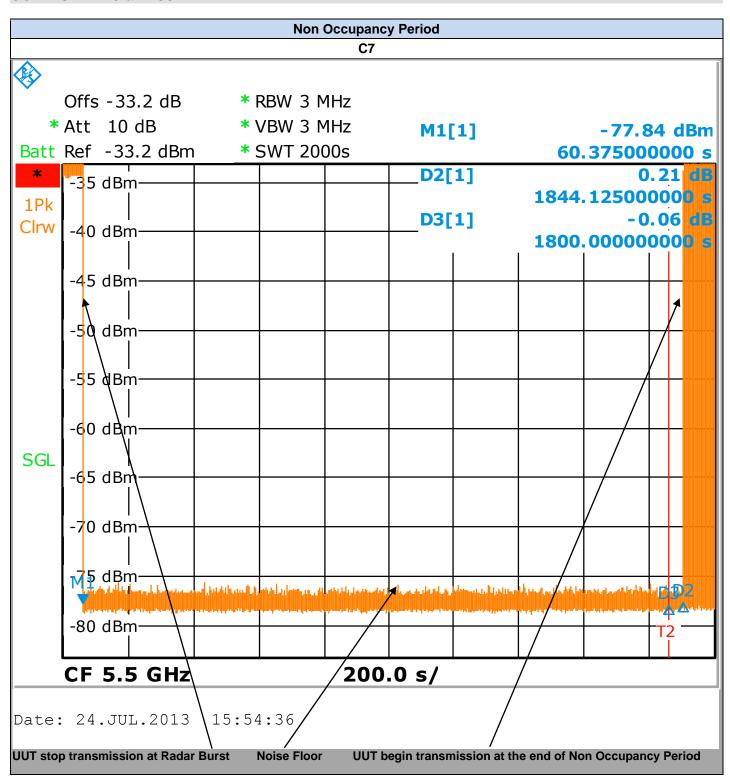
Trace= Clear/Write Detector= Peak



Photograph for DFS Non-Occupancy Period



8.3. GRAPHIC & RESULT





Radar Test Signal 1	802.11a
Channel	C7
Channel Non-Occupancy period (s)	1844,125

Result: PASS

Non-Occupancy Period Limit: Minimum 1800 seconds



9. TEST EQUIPMENT LIST

	DFS							
Apparatus	Trade Mark	Туре	Registration number	Calibration date	Calibration due			
Spectrum Analyser	ROHDE & SCHWARZ	FSL	A4060032	2012/11	2014/11			
Attenuator 3dB	Mini-Circuit	BWS3W2	A7122208	2013/07	2014/07			
Attenuator 3dB	Mini-Circuit	BWS3W2	A7122209	2013/07	2014/07			
Attenuator 3dB	Mini-Circuit	BWS3W2	A7122210	2013/07	2014/07			
Attenuator 10dB	Pasternack	PE7004-10	A7122220	2013/07	2014/07			
Attenuator 10dB	JFW	50HF010	A7122122	2013/07	2014/07			
Attenuator 10dB	Pasternack	PE7004-10	A7122219	2013/07	2014/07			
Attenuator 20dB	Faiviewmicrowave	SA4016-20	A7122211	2013/07	2014/07			
Attenuator 20dB	Faiviewmicrowave	SA4016-20	A7122212	2013/07	2014/07			
Signal generator	ROHDE & SCHWARZ	SMJ100A	A5444007	2013/01	2014/01			
Power Supply	KIKUSUI	PCR 500M	A7040079	Verified with a multimeter	Verified with a multimeter			
Multimeter	KEITHLEY	2000	A1241008	2011/10	2013/10			
RF Cable		CNB 08	A5329393	2013/03	2014/03			
RF Cable	-	CNC 02	A5329397	2013/03	2014/03			
RF Cable	-	CND 06	A5329377	2013/07	2014/07			
RF Cable	-	CS3B 02	A5329429	2013/07	2014/07			
RF Cable	-	CS2D 03	A5329441	2013/03	2014/03			
Preamplifier	HP	8449B	A7080071	2012/09	2013/09			



10. UNCERTAINTIES CHART

Kind of test	Measurement uncertainties (k=2) ±x(dB) / (Hz)	Limit for uncertainties ±y(dB)
TRANSMITTER REQUIREMENTS		
RF Frequency	±2.10 ⁻⁸ Hz	±1.10 ⁻⁵ Hz
Occupied Channel bandwidth	± 100 kHz	-
RF power conducted	±0.6 dB	±1.5 dB
Temperature	±0.5°C	±1°C
Humidity	±2.5 %	±5 %
Time		±10 %



11. ANNEX

TYPE 5 PARAMETER SHEET Rohde & Schwarz K6 Pulse Sequence									
Trial Nu	Trial Number : 1								
Bursts	in Trial: 8								
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)			
1	1	83	8			1028			
2	2	89,2	20	928		137			
3	2	51,3	13	1091		1139			
4	3	74,1	20	1114	1237	1423			
5	2	81,3	15	1828		714			
6	2	64,5	7	1706		1035			
7	3	87	18	1045	954	1492			
8	2	79,6	19	1047		577			
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

MSW File (Path A): FCC0696-T5-08-TRIAL-1



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 2 Bursts in Trial: 9** Pulse 1-to-Pulse 2-to-Pulse Chirp **Start Location** Number of **Burst** Width 2 Spacing 3 Spacing Width Within Interval **Pulses** (µsec) (MHz) (µsec) (µsec) (msec) 84,8 69,4 52,8 58,4 87,9 79,1 66,3

MSW File (Path A): FCC0696-T5-09-TRIAL-2



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 3 Bursts in Trial: 10** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (msec) (µsec) 98,2 73,6 95,1 75,7 71,7 74,5 80,6 56,5 55,2

MSW File (Path A): FCC0696-T5-10-TRIAL-3



Rohde & Schwarz K6 Pulse Sequencer

Trial Number : 4

Bursts in Trial: 11

Bursts	Bursts in Trial: 11							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	1	91,3	7			70		
2	2	96,1	20	1397		244		
3	2	92,9	8	1222		569		
4	1	93,7	9			1024		
5	3	73,3	15	1243	1066	815		
6	3	88,1	13	1133	1652	549		
7	2	93,7	14	920		1027		
8	1	99,1	6			834		
9	3	88,6	17	1511	1909	600		
10	2	92,5	10	1050		314		
11	2	53,7	17	1624		7		
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-11-TRIAL-4

Rohde & Schwarz



TYPE 5 PARAMETER SHEET K6 Pulse Sequencer **Trial Number: 5 Bursts in Trial: 12** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (msec) (µsec) 51,8 80,1 88,2 71,8 91,8 56,8 69,6 94,6 52,7 65,5 68,6 94,1

MSW File (Path A): FCC0696-T5-12-TRIAL-5

Rohde & Schwarz K6 Pulse Sequencer



TYPE 5 PARAMETER SHEET Trial Number : 6 Bursts in Trial: 13 Burst Number of Pulse Width Width Width (usec) (MHz) (usec) (usec) (usec)

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)
1	2	80,3	8	1655		381
2	2	54,5	5	1022		363
3	3	68,3	12	967	1634	209
4	3	64	18	1382	1616	337
5	3	73,2	20	1339	1044	432
6	2	77,8	20	1441		910
7	1	57,2	13			137
8	3	77,3	15	1284	1888	320
9	2	72,4	10	1040		349
10	2	83,9	5	1843		849
11	2	95	13	1021		352
12	1	63,3	10			583
13	2	60,3	11	1658		285
14						
15						
16						
17						
18						
19						
20						

MSW File (Path A): FCC0696-T5-13-TRIAL-6



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 7 Bursts in Trial: 14 Pulse** Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (msec) (µsec) 60,8 57,8 77,6 66,3 97,5 90,1 50,5 55,8 73,7 55,3 79,8 84,3

MSW File (Path A): FCC0696-T5-14-TRIAL-7



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 8 Bursts in Trial: 15** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 3 Spacing Within Interval 2 Spacing **Pulses** (MHz) (µsec) (µsec) (µsec) (msec) 65,3 90,7 87,7 82,7 85,2 67,9 61,6 73,1 51,6 83,4 93,1 88,6 91,9

MSW File (Path A): FCC0696-T5-15-TRIAL-8

90,7

52,4



TYP	E 5 PARA	METER	SHEET			Rohde & Schwarz K6 Pulse Sequencer		
Trial N	Trial Number : 9							
Bursts	in Trial: 16							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	2	84,1	7	1896		659		
2	2	69,1	7	1696		266		
3	1	71,7	7			703		
4	1	83	20			631		
5	2	96,8	11	1232		567		
6	2	61,1	11	1241		647		
7	1	70,1	5			418		
8	2	62,5	19	1144		149		
9	2	78,3	13	1703		296		
10	2	97,4	15	1728		700		
11	3	88,9	17	1759	1060	246		
12	3	91	13	1606	1572	468		
13	3	76,5	11	1082	1896	231		
14	1	64,5	12			182		
15	2	60,2	18	1314		311		
16	3	90,4	14	1415	1474	705		
17								
18								
19								

MSW File (Path A): FCC0696-T5-16-TRIAL-9



TYPE 5 PARAMETER SHEET Rohde 8 K6 Pulse S									
Trial N	Trial Number : 10								
Bursts	in Trial: 17								
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)			
1	2	66,2	20	1769		164			
2	1	83	8			264			
3	2	99,6	18	1270		570			
4	3	98,4	14	1283	1283	221			
5	3	55,6	13	1939	1733	185			
6	2	97,5	20	1492		485			
7	1	55,5	17			652			
8	3	77,4	5	1637	1876	182			
9	1	77,6	15			610			
10	2	71,9	15	1457		246			
11	3	80	15	1005	1786	413			
12	1	65,2	11			118			
13	2	92	8	1265		519			
14	3	68,6	18	1138	1708	457			
15	1	94,3	8			451			
		· · · · · · · · · · · · · · · · · · ·							

MSW File (Path A): FCC0696-T5-17-TRIAL-10

70,7

63,4

_									
TYP	Rohde & Schwarz K6 Pulse Sequencer								
Trial N	Trial Number : 11								
Bursts	Bursts in Trial: 18								
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)			
1	2	79,7	5	1563		647			
2	2	59,3	19	1693		423			
3	2	52,1	13	1625		110			
4	1	93,8	19			194			
5	2	93	6	1550		97			
6	2	87,6	14	1233		448			
7	3	62	7	1063	1503	144			
8	3	95,4	19	1430	1577	282			
9	1	82,8	7			514			
10	3	51,2	15	1404	1885	187			
11	2	81	8	1554		392			
12	3	81,6	5	1254	1055	387			
13	2	62,1	14	1006		291			
14	2	82	13	1003		435			
15	2	60,9	18	1027		508			
16	1	58,2	10			230			
17	2	80,6	6	1027		468			
1									

MSW File (Path A): FCC0696-T5-18-TRIAL-11

65,7



TYPE 5 PARAMETER SHEET Rohde & Schw K6 Pulse Sequen									
Trial N	Trial Number : 12								
Bursts	Bursts in Trial: 19								
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)			
1	2	78,6	10	1208		558			
2	3	93,2	11	1743	1155	475			
3	2	86	13	1719		70			
4	1	76,4	13			529			
5	1	84,4	10			144			
6	1	68,4	5			422			
7	2	65,1	11	1250		524			
8	2	58,6	13	1372		384			
9	3	68,6	15	1499	1321	476			
10	3	91,8	13	1201	1475	19			
11	3	88,4	7	1274	1510	451			
12	2	91,2	20	1331		469			
13	3	87,7	11	1356	1716	214			
14	3	61,1	13	1718	957	29			

MSW File (Path A): FCC0696-T5-19-TRIAL-12

77,1

81,7

53,6

68,2

93,8



TYPE 5 PARAMETER SHEET Trial Number : 13 Bursts in Trial: 20

Rohde & Schwarz K6 Pulse Sequencer

Duists	Buists III That. 20								
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)			
1	2	67,2	11	1581		422			
2	2	64,9	13	1929		404			
3	2	88,1	10	1131		298			
4	2	75,5	18	1884		18			
5	3	69,9	9	1348	1175	523			
6	2	80,4	9	1074		12			
7	2	55	9	1831		4			
8	2	70,1	11	988		320			
9	3	98,8	17	1502	1211	35			
10	3	58,8	12	1019	1687	83			
11	2	67,9	8	1268		285			
12	1	85,6	7			410			
13	2	93,5	19	1574		134			
14	3	58,4	10	968	1893	168			
15	1	73,8	17			266			
16	3	95	19	922	1739	183			
17	3	63,6	5	1267	1251	146			
18	2	74,8	10	1175		336			
19	2	62,9	5	1110		131			
20	1	72,8	15			496			

MSW File (Path A): FCC0696-T5-20-TRIAL-13



TYPE 5 PARAMETER SHEET Trial Number : 14 Bursts in Trial: 8

Rohde & Schwarz K6 Pulse Sequencer

Duists	Buists III That. 0							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	3	64,2	19	1609	1360	1089		
2	2	88,4	17	1751		1357		
3	1	51,1	14			1003		
4	3	63,6	15	963	962	1376		
5	1	84,3	11			937		
6	3	90,7	5	1098	986	1068		
7	2	93	20	1130		1124		
8	2	67,4	12	1308		574		
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-08-TRIAL-14



Rohde & Schwarz K6 Pulse Sequencer

Trial Number: 15

Bursts in Trial: 9

Bursts	Bursts in Trial: 9							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	1	62,3	5			128		
2	3	76,5	8	1019	1323	486		
3	2	82,5	5	1183		911		
4	2	54	10	1805		972		
5	3	94,7	18	1565	1079	46		
6	3	53,9	19	1625	1139	570		
7	3	55,6	13	1623	1927	1143		
8	2	68,3	13	1890		1163		
9	3	99,8	8	1857	1735	249		
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-09-TRIAL-15



Rohde & Schwarz K6 Pulse Sequencer

Trial Number: 16

Bursts	Bursts in Trial: 10							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	2	54,1	5	1152		389		
2	2	78,9	13	1150		881		
3	1	77,6	13			980		
4	1	85,8	14			40		
5	3	74,8	15	1596	976	418		
6	1	99,2	5			129		
7	3	71,5	6	1454	1858	947		
8	1	67,5	5			413		
9	2	68,7	9	1840		1060		
10	3	81,2	13	1604	1132	803		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-10-TRIAL-16



Rohde & Schwarz K6 Pulse Sequencer

Trial Number: 17

Bursts in Trial: 11

Bursts	Bursts in Trial: 11							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	1	78,5	8			441		
2	1	60,8	9			62		
3	1	96,8	11			942		
4	2	65,9	17	1306		1079		
5	3	95,3	6	1571	1562	269		
6	2	67	17	962		44		
7	2	92,9	19	1635		503		
8	3	74,3	14	1463	1896	264		
9	3	77,7	10	1875	1453	115		
10	2	75,1	6	1036		465		
11	1	94,8	19			676		
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-11-TRIAL-17



Rohde & Schwarz K6 Pulse Sequencer

Trial Number : 18

Bursts in Trial: 12

Bursts	Bursts in Trial: 12							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	2	53,1	8	1042		583		
2	2	59,6	13	989		824		
3	3	72,4	5	1686	1217	658		
4	2	66,6	17	1726		663		
5	3	57,3	6	1791	1191	602		
6	1	51,9	18			955		
7	1	56,1	13			900		
8	2	96,1	6	1368		599		
9	1	93,4	18			634		
10	1	97,3	11			534		
11	3	50,5	7	1103	1061	599		
12	2	67,1	18	1036		489		
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-12-TRIAL-18



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 19 Bursts in Trial: 8** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (µsec) (msec) 61,4 69,1 56,5 87,2 51,8 71,8 54,3

MSW File (Path A): FCC0696-T5-08-TRIAL-19



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 20 Bursts in Trial: 9** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (msec) (µsec) 84,5 89,4 86,5 57,4 95,7 94,5 70,5 69,9

MSW File (Path A): FCC0696-T5-09-TRIAL-20



Rohde & Schwarz K6 Pulse Sequencer

Trial Number : 21

Bursts in Trial: 10

Bursts	Bursts in Trial: 10							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	2	61,1	18	1731		841		
2	1	69,6	17			421		
3	2	80,5	7	1015		29		
4	2	51,3	14	1021		657		
5	2	52,7	14	1046		790		
6	2	63,3	20	1279		230		
7	1	63,9	12			310		
8	3	52,2	9	1109	1579	593		
9	2	63,6	14	1519		807		
10	3	56	17	1375	1076	205		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-10-TRIAL-21



TYPE 5 PARAMETER SHEET Trial Number: 22

Rohde & Schwarz K6 Pulse Sequencer

Bursts	in	Tria	l: 11
		Num	her d

Daists	Dursts III I I I I I I I I I I I I I I I I							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	1	85,3	9			517		
2	1	60,9	19			1056		
3	3	65,2	7	1138	1571	1076		
4	3	53,5	8	1862	1214	174		
5	2	55,8	13	1101		639		
6	2	64,9	7	1630		809		
7	2	84,3	19	1556		686		
8	2	60,8	13	981		363		
9	3	86,7	14	1450	1851	531		
10	3	82,4	17	1139	1862	239		
11	3	58,1	18	1102	1299	307		
12								
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-11-TRIAL-22



Rohde & Schwarz K6 Pulse Sequencer

Trial Number: 23

Bursts in Trial: 12

Bursts	Bursts in Trial: 12							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	1	65,7	8			549		
2	1	81,7	6			6		
3	2	61,8	5	1257		610		
4	2	99,5	7	1559		681		
5	2	75,5	20	1196		923		
6	2	77,7	15	1495		99		
7	2	56	7	1268		285		
8	2	78,5	9	1892		142		
9	2	96,7	17	1834		977		
10	2	85,6	13	1022		478		
11	1	88,1	19			212		
12	2	86,8	17	1007		483		
13								
14								
15								
16								
17								
18								
19								
20								

MSW File (Path A): FCC0696-T5-12-TRIAL-23



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 24 Bursts in Trial: 13** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (µsec) (msec) 79,5 88,7 64,6 65,1 56,2 50,7 87,7 65,6 81,4 90,7 85,6 88,3

MSW File (Path A): FCC0696-T5-13-TRIAL-24



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 25 Bursts in Trial: 14** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width 2 Spacing 3 Spacing Within Interval **Pulses** (MHz) (µsec) (µsec) (µsec) (msec) 90,3 63,8 68,6 69,6 75,2 82,1 92,5 65,1 99,6 81,9 82,3 94,3 55,9 83,1

MSW File (Path A): FCC0696-T5-14-TRIAL-25



TYP	TYPE 5 PARAMETER SHEET Rohde & Schwarz K6 Pulse Sequencer							
Trial Number : 26								
Bursts	in Trial: 15							
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)		
1	3	87,6	9	1547	1025	642		
2	2	82,5	10	1377		607		
3	3	56,5	9	1437	994	231		
4	2	99	6	1240		478		
5	1	79,6	5			695		
6	2	87,7	18	1830		633		
7	3	60,5	18	1504	1118	258		
8	3	97,1	18	1587	1144	394		
9	3	79,3	14	1071	1272	450		
10	1	56,6	7			322		
11	2	93,2	19	967		6		
12	2	85,7	5	1861		603		
13	2	90	8	1177		109		
14	2	67	20	1690		441		
15	2	90,9	9	1469		138		
16								
17								
18								
19			1					

MSW File (Path A): FCC0696-T5-15-TRIAL-26



TYP	Rohde & Schwarz K6 Pulse Sequencer									
Trial Number : 27										
Bursts	Bursts in Trial: 16									
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)				
1	2	80,7	5	1043		405				
2	3	61,7	9	1412	1823	24				
3	1	63,1	9			261				
4	2	67	5	1819		532				
5	1	58,3	13			172				
6	1	71,3	12			40				
7	2	94,2	10	1776		347				
8	2	75,3	12	1395		397				
9	2	91,3	11	1908		163				
10	3	66,5	14	1133	1814	711				
11	2	68	13	1780		518				
12	3	72,4	6	1796	1266	180				
13	3	98,4	14	955	1835	64				
14	2	81	6	1065		635				
15	2	57,2	18	1274		676				
16	2	99,1	18	1873		740				

MSW File (Path A): FCC0696-T5-16-TRIAL-27



Rohde & Schwarz **TYPE 5 PARAMETER SHEET** K6 Pulse Sequencer **Trial Number: 28 Bursts in Trial: 17** Pulse Chirp Pulse 1-to-Pulse 2-to-**Start Location** Number of **Burst** Width Width Within Interval 2 Spacing 3 Spacing **Pulses** (MHz) (µsec) (µsec) (µsec) (msec) 78,2 66,4 79,5 85,5 56,2 82,3 55,9 73,5 94,9 59,7 87,4 97,5 74,8 53,9

MSW File (Path A): FCC0696-T5-17-TRIAL-28



TYP	Rohde & Schwarz K6 Pulse Sequencer										
Trial Number : 29											
Bursts in Trial: 18											
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)					
1	2	68,2	13	1691		590					
2	3	84,7	6	1099	1764	138					
3	3	52,7	13	1147	1362	205					
4	2	52,5	15	1254		96					
5	2	87,6	8	1432		346					
6	3	99,6	17	1038	1096	435					
7	1	55,1	12			471					
8	1	91,7	10			315					
9	2	86,6	9	1755		225					
10	2	76,2	13	1067		200					
11	3	70,3	20	1773	1044	612					
12	2	79,5	11	1328		6					
13	2	73,8	5	1213		61					
14	1	93,8	10			657					
15	3	98,9	20	1284	1416	297					

MSW File (Path A): FCC0696-T5-18-TRIAL-29

85,5

65,2



TYPE 5 PARAMETER SHEET Rohde & Schwarz K6 Pulse Seguencer											
Trial Number : 30											
Bursts in Trial: 19											
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to- 2 Spacing (µsec)	Pulse 2-to- 3 Spacing (µsec)	Start Location Within Interval (msec)					
1	3	92,9	13	1390	1002	447					
2	2	89,7	11	979		5					
3	3	59,1	13	1015	1601	394					
4	2	66,4	17	1571		415					
5	1	81,2	18			172					
6	3	52,3	17	1727	1599	460					
7	2	95,1	19	1074		366					
8	3	55,3	7	975	1524	92					
9	2	70,2	14	1322		193					
10	3	78,9	13	1252	1503	235					
11	1	54	7			171					
12	2	81,3	20	1439		67					
13	2	77,2	13	1747		520					
14	3	78,3	20	1714	1589	317					
15	2	75,6	15	1838		199					
16	2	87,3	7	1050		319					
17	1	97,8	17			377					
18	3	76,3	17	1183	952	557					
19	3	66,4	9	1031	1586	608					

MSW File (Path A): FCC0696-T5-19-TRIAL-30