



L C I E

TEST REPORT

Number
Composition of document

DFS

122014-644470D
77 pages

FCC Registration Number
Industry Canada Number

166175 (FAR)
6230B

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 Fast 5260CV
OPTIMUM
SAGEMCOM
F@st 5260CV
LK312300942
VW3FAST5260CV

Test date

2013/07/22 to 2013/07/25

Tests performed by

Stéphane PHOUDIAH

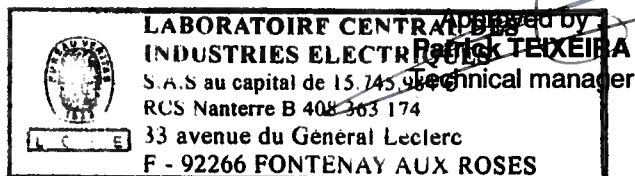
Test site

Fontenay aux Roses

Date of issue

2013/09/10

Written by :
Stéphane PHOUDIAH
Tests operator



This document shall not be reproduced, except in full, without the written approval of the LCIE. This document contains results related only to the item tested. It does not imply the conformity of the whole production to the items tested. Unless otherwise specified, the decision of conformity takes into account the uncertainty of measures.



SUMMARY

1.	TEST PROGRAM	3
2.	EQUIPMENT DESCRIPTION.....	4
3.	DFS DETECTION THRESHOLDS DETERMINATION & REFERENCE NOISE LEVEL	12
4.	U-NII DETECTION BANDWIDTH.....	16
5.	CHANNEL AVAILABILITY CHECK	22
6.	STATISTICAL PERFORMANCE CHECK.....	27
7.	CHANNEL MOVE TIME & CLOSING TRANSMISSION TIME.....	35
8.	NON-OCCUPANCY PERIOD.....	43
9.	TEST EQUIPMENT LIST	46
10.	UNCERTAINTIES CHART	47
11.	ANNEX	48



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

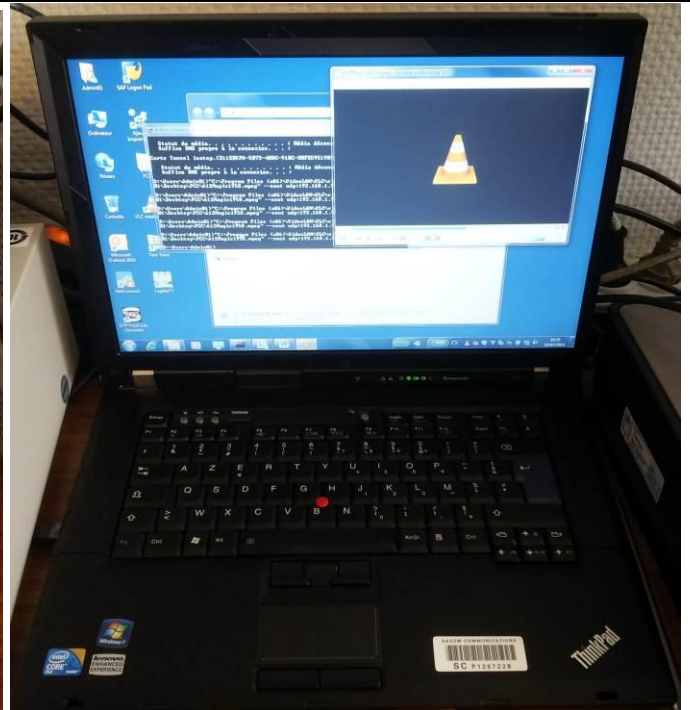
Photograph of UUT



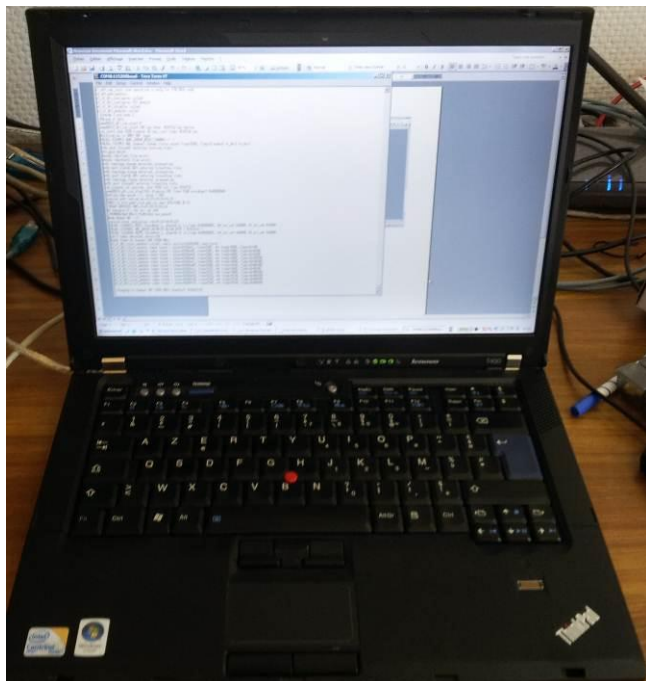
- Auxiliary equipment (AE) used for testing:



Laptop 1 for Client Device: Lenovo L530



Laptop 2 for Master Device: Lenovo R500



Laptop 3 for Master Device Setting & Radar Detection Monitoring



Client Device: CISCO LINKSYS AC530 inside the Shielded Box

Photograph of AE



- **Input/output:**

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

- **Software identification:**

- Software version: V6.0.9.1

- **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	122014-644470A
5150MHz to 5350MHz	122014-644470C & D
5470MHz to 5725MHz (Note 1)	122014-644470C & D
5725MHz to 5850MHz	122014-644470B

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



-Channel plan 802.11a, 802.11n HT20:

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:

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

MCS index	Spatial streams	Modulation Type	802.11n HT20		802.11n HT40	
			Data rate (Mbit/s)		Data rate (Mbit/s)	
			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



MCS index	Spatial streams	Modulation Type	802.11ac VHT80	
			Data rate (Mbit/s)	
			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

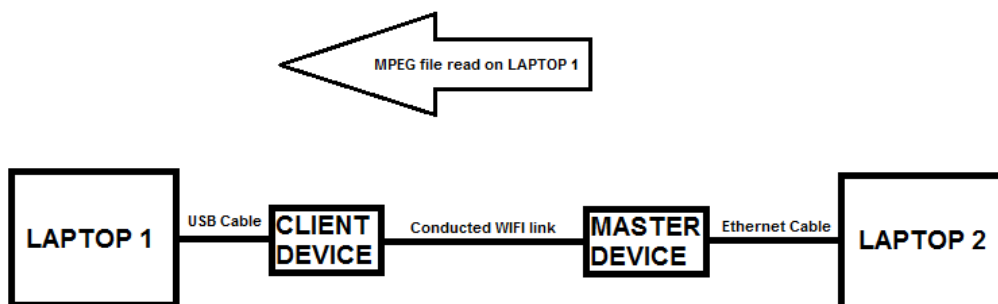
(Note 3): Declared by the Manufacturer



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



UUT Marking plate



UUT Power supply marking plate

2.4. EQUIPMENT MODIFICATIONS

Modification:

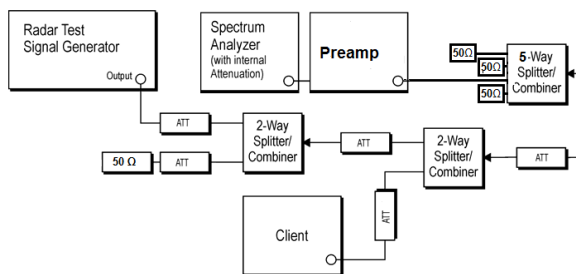
In order to monitor the UUT behavior for radar detection and to set the UUT parameters, a serial cable is plugged between the UUT & the Laptop 3

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

Detector= Peak

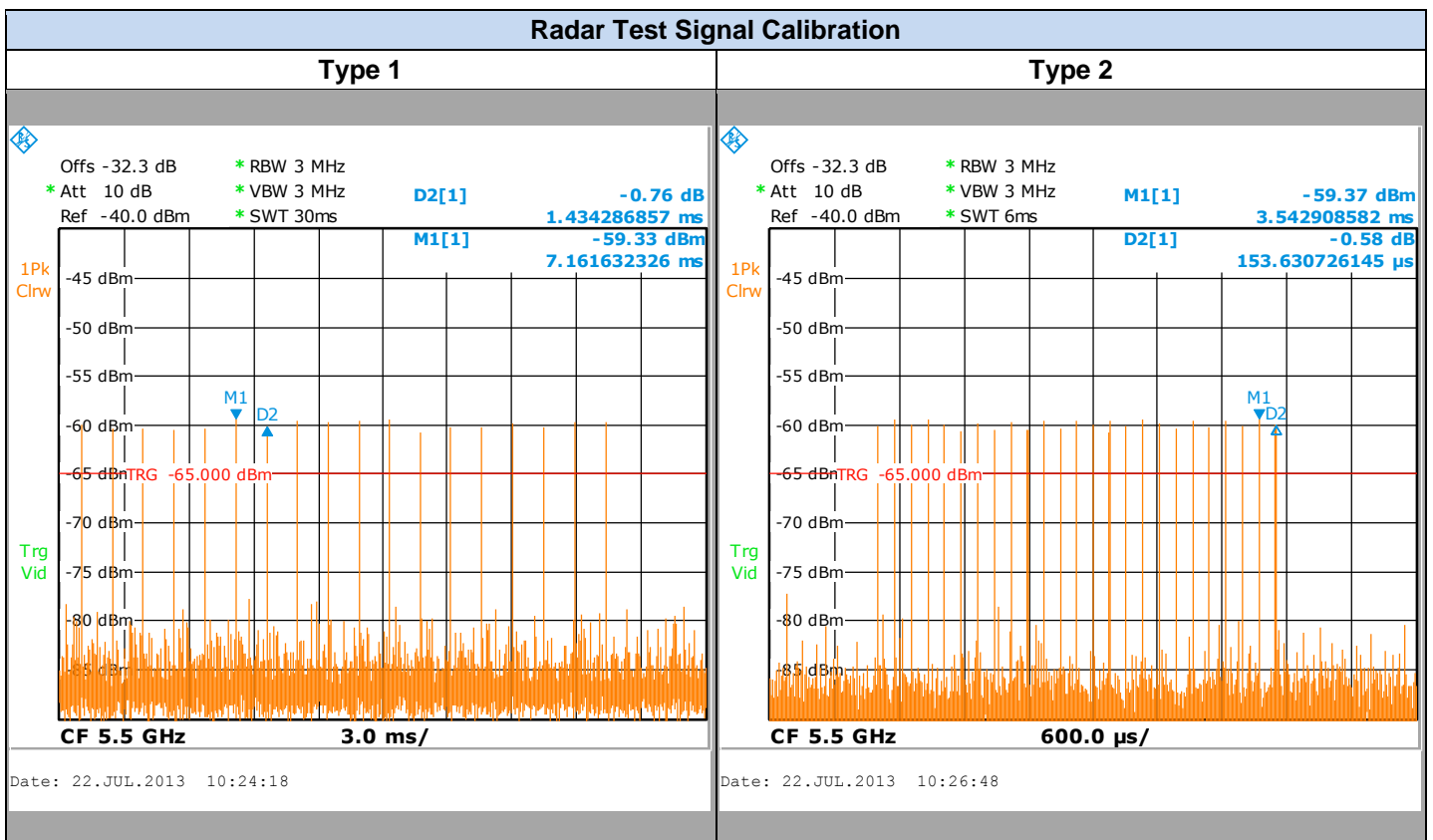


Photograph for Test Signal Level Calibration

3.1. GRAPHICS & DFS DETECTION THRESHOLDS DETERMINATION

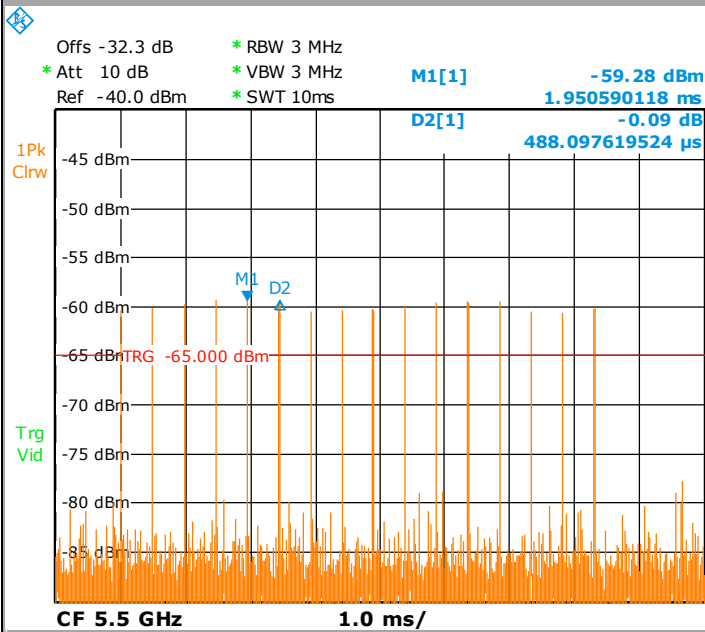
Frequency	5500MHz
Applicable Level (dBm)	-64 (Note 4)
Lowest Antenna Gain (dBi)	3,7
Additional Level (dB)	1
DFS Detection Thresholds (dBm)	-59,3

(Note 4): Maximum Transmit Power below 200mW



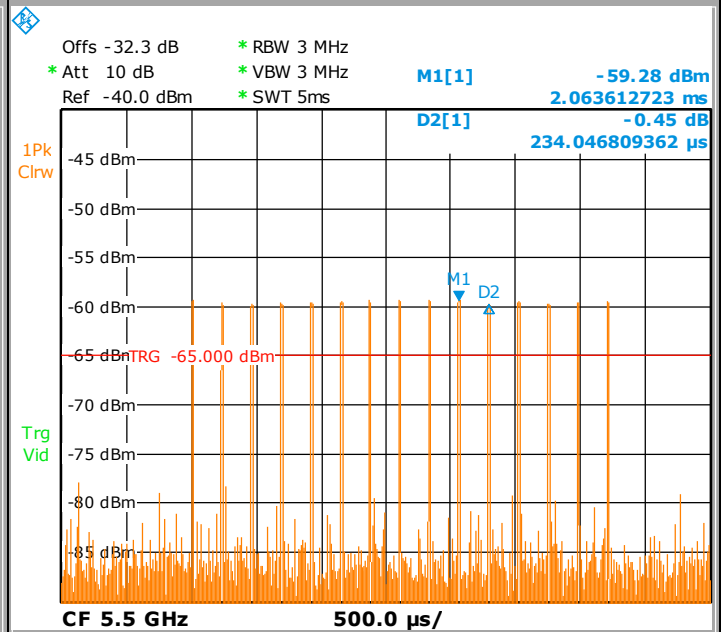
Radar Test Signal Level Calibration

Type 3



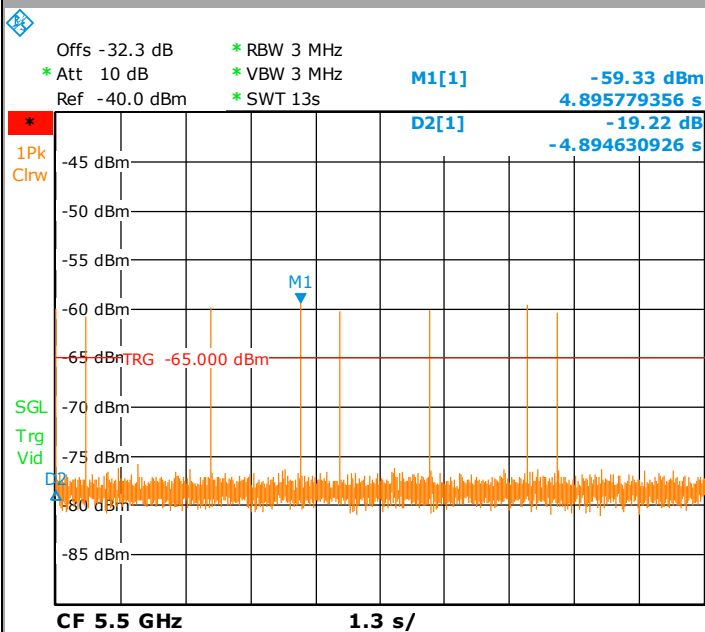
Date: 22.JUL.2013 10:28:14

Type 4



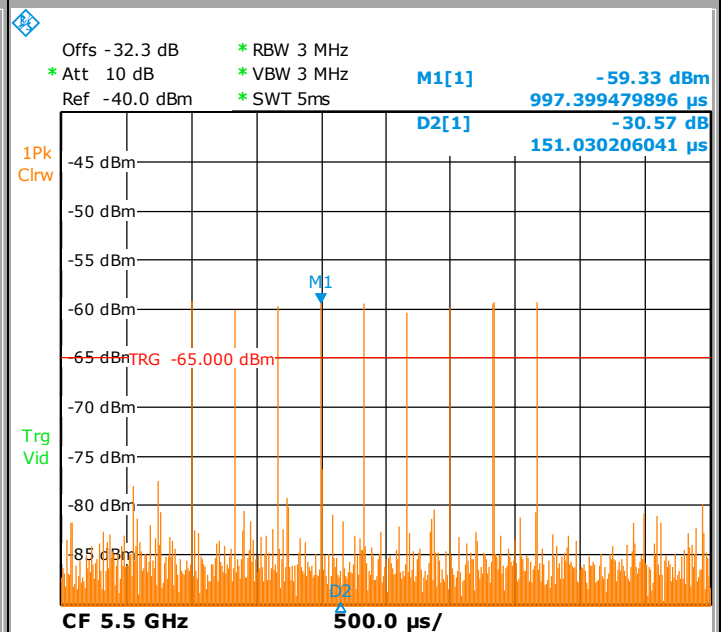
Date: 22.JUL.2013 10:31:49

Type 5



Date: 22.JUL.2013 10:39:46

Type 6



Date: 22.JUL.2013 10:44:08



Reference Noise Level



Offs -32.3 dB

* RBW 3 MHz

* Att 10 dB

* VBW 3 MHz

Ref -32.3 dBm

* SWT 210s

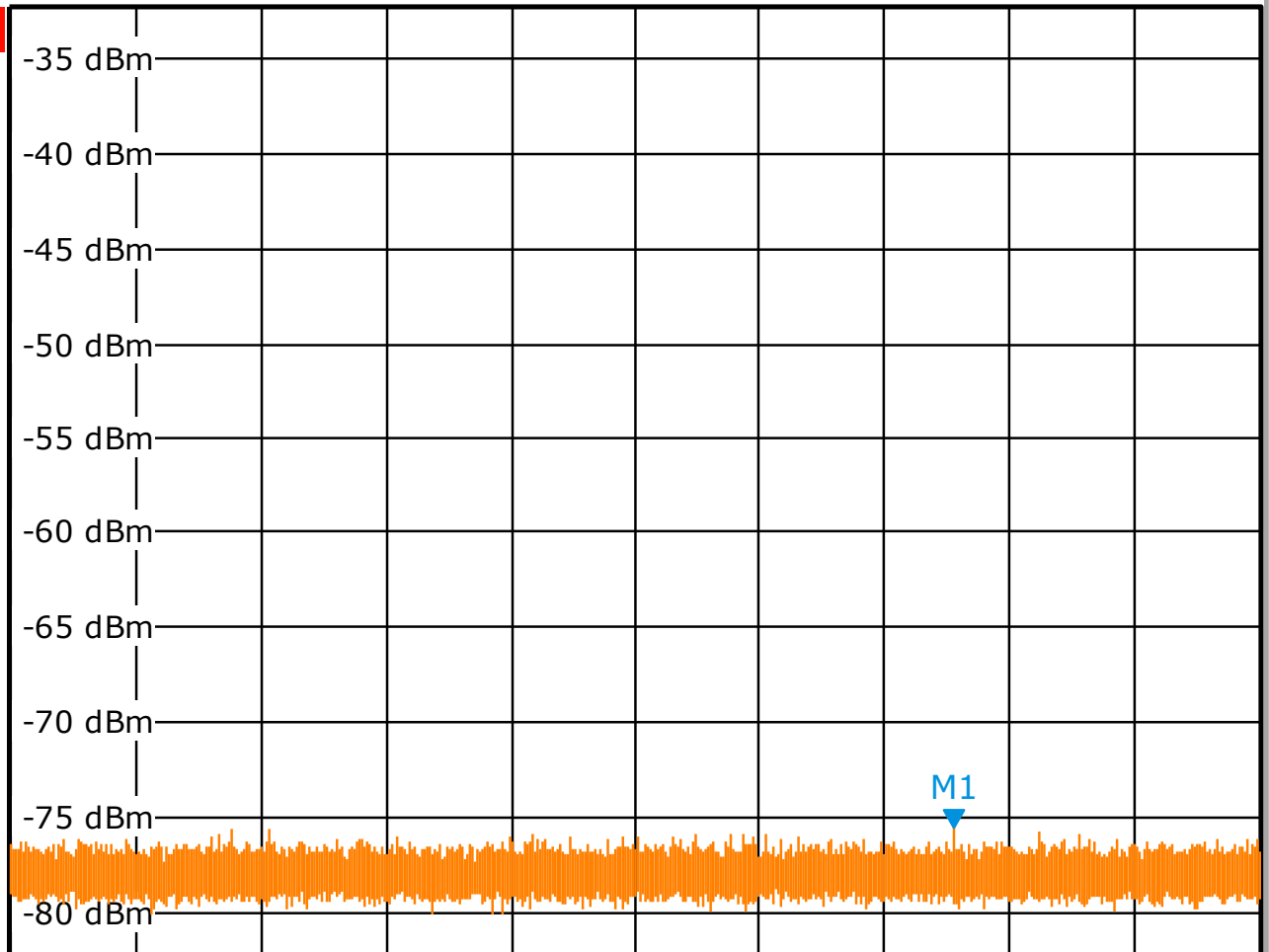
M1[1]

-75.51 dBm

158.522141317 s

1Pk
Clw

SGL



CF 5.5 GHz

21.0 s/

Date: 22.JUL.2013 10:51:39

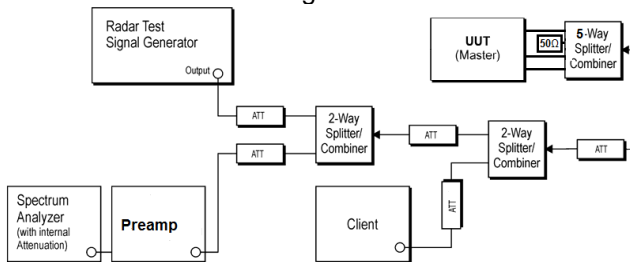
4. U-NII DETECTION BANDWIDTH

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

[illegible]

[illegible]

[illegible]



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



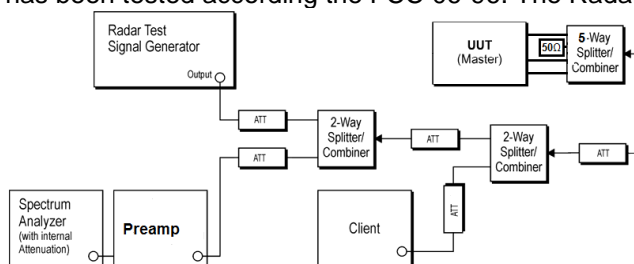
5. CHANNEL AVAILABILITY CHECK

5.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/07/24
Ambient temperature : 27°C
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

Span= 0

Amplitude= Sufficient to observe the signal amplitude

RBW= 3MHz

VBW= 3MHz

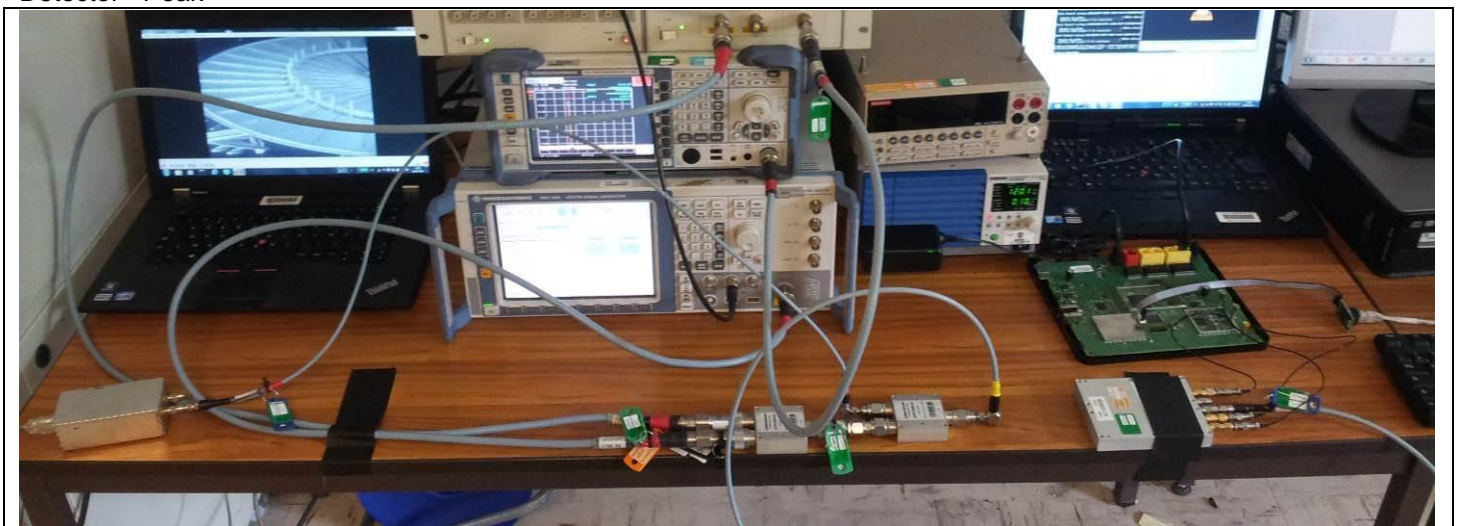
Sweep Time= 210s for CAC Time, 270s for Radar Burst at the Beginning of the Channel Availability Check Time & 340s for Radar Burst at the End of the Channel Availability Check Time

Sweep= Single Sweep

Sweep Point= 32000

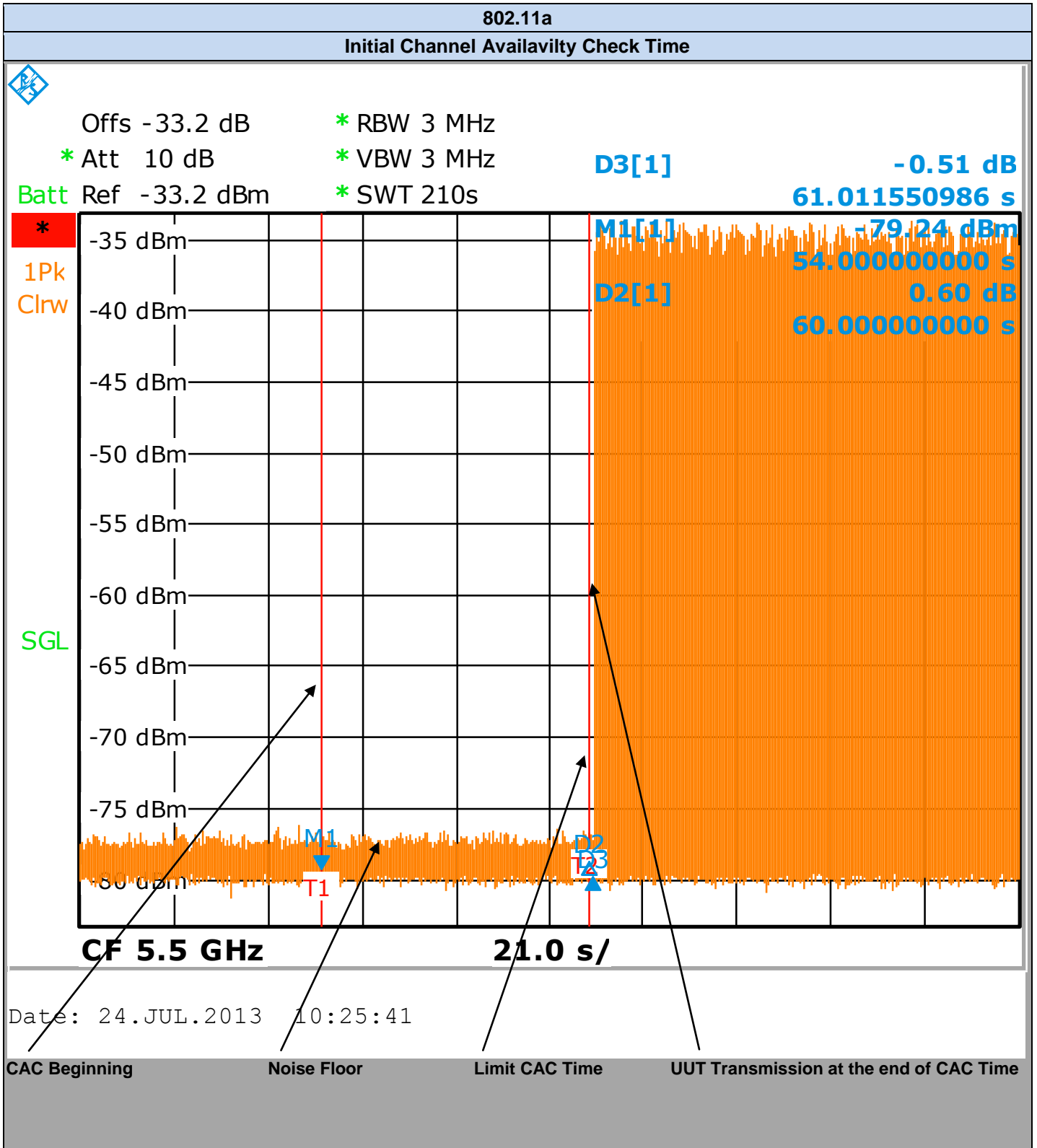
Trace= Clear/Write

Detector= Peak



Photograph for DFS Channel Availability Check

5.3. GRAPHICS & RESULTS



802.11a

Radar Burst at the Beginning of the Channel Availability Check Time



Offs -33.2 dB

* RBW 3 MHz

* Att 10 dB

* VBW 3 MHz

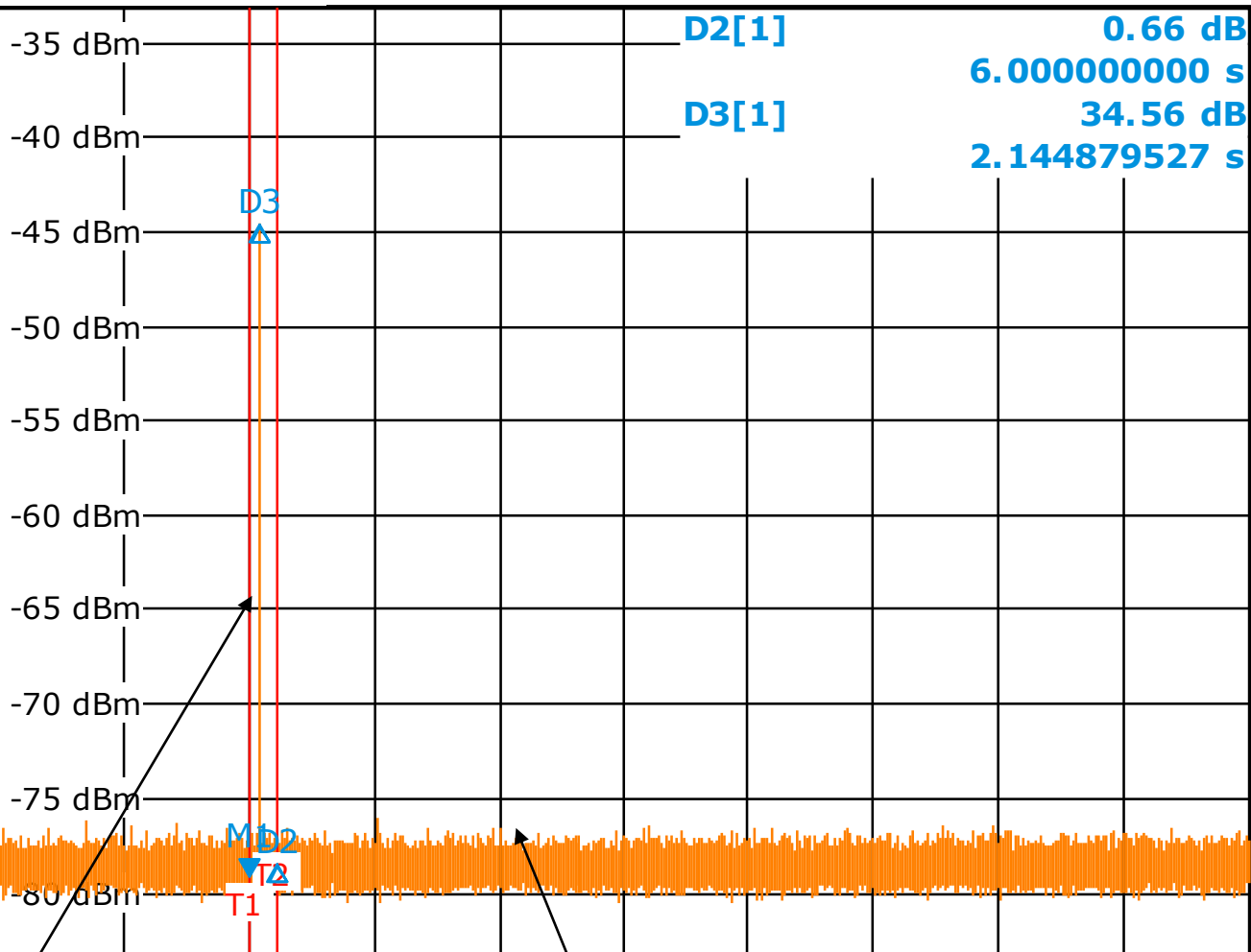
M1[1]

-79.13 dBm

Batt Ref -33.2 dBm

* SWT 270s

54.00000000 s

 *
 1Pk
 Clrw


CF 5.5 GHz

27.0 s/

Date: 24.JUL.2013 10:59:32

Radar Burst at the beginning of the CAC Time

Noise Floor

802.11a

Radar Burst at the End of the Channel Availability Check Time



Offs -33.2 dB

* RBW 3 MHz

* Att 10 dB

* VBW 3 MHz

D3[1]

34.41 dB

Batt Ref -33.2 dBm

* SWT 324s

-3.988437139 s

*

-35 dBm

M1[1]

-78.69 dBm

1Pk

-40 dBm

114.000000000 s

Clrw

-45 dBm

D2[1]

0.68 dB

-6.000000000 s

-50 dBm

D3

-55 dBm

-60 dBm

-65 dBm

-70 dBm

-75 dBm

-80 dBm

SGL

-55 dBm

-60 dBm

-65 dBm

-70 dBm

-75 dBm

-80 dBm

-85 dBm

-90 dBm

-95 dBm

-100 dBm

-105 dBm

-110 dBm

-115 dBm

-120 dBm

-125 dBm

-130 dBm

-135 dBm

-140 dBm

-145 dBm

-150 dBm

-155 dBm

-160 dBm

-165 dBm

-170 dBm

-175 dBm

-180 dBm

-185 dBm

-190 dBm

CF 5.5 GHz

32.4 s/

Date: 24.JUL.2013 11:12:56

Radar Burst at the end of the CAC Time

Noise Floor



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

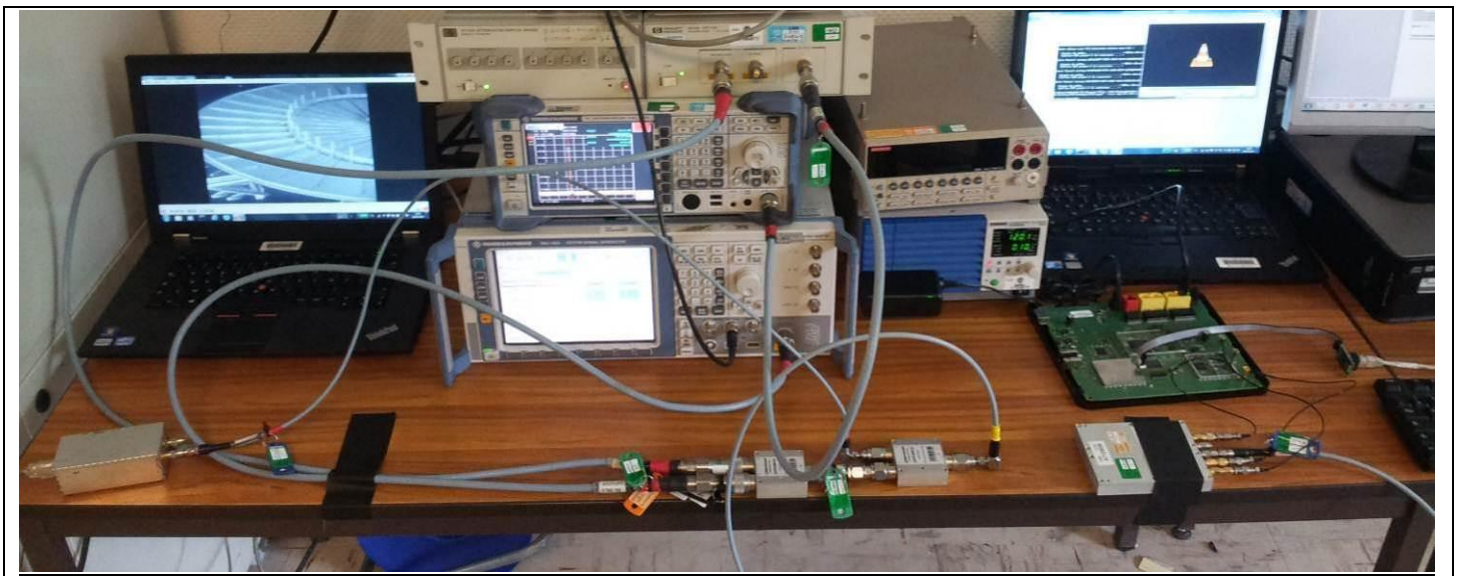
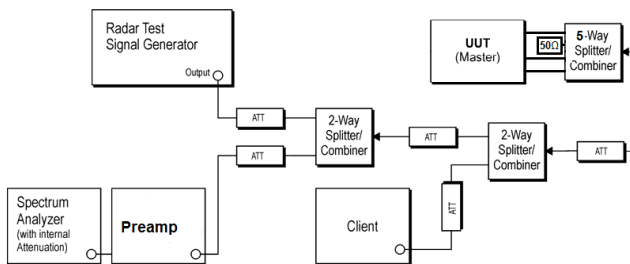
6. STATISTICAL PERFORMANCE CHECK

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

RADAR 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	18	1	1428	1	1	1	1
Statistical Performance Check (%)				100,0	96,7	100,0	100,0



RADAR 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
Statistical Performance Check (%)				100,0	100,0	100,0	100,0



RADAR 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
Statistical Performance Check (%)				100,0	100,0	100,0	100,0



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
Statistical Performance Check (%)				100,0	100,0	100,0	100,0



RADAR 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
Statistical Performance Check (%)		100,0	100,0	100,0	100,0



RADAR 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
Statistical 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 Successful Detection	Minimum Number of Trials
1	1	1428	18	60%	30
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 Type 1-4 (%)				80%	120

Long Pulse Radar Test Waveform					
Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	Number of Pulses	Minimum Percentage of Successful 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 Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

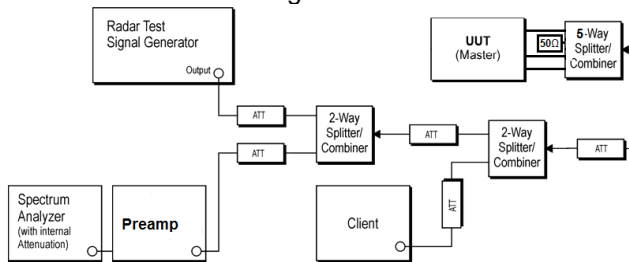
7. CHANNEL MOVE TIME & CLOSING TRANSMISSION TIME

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

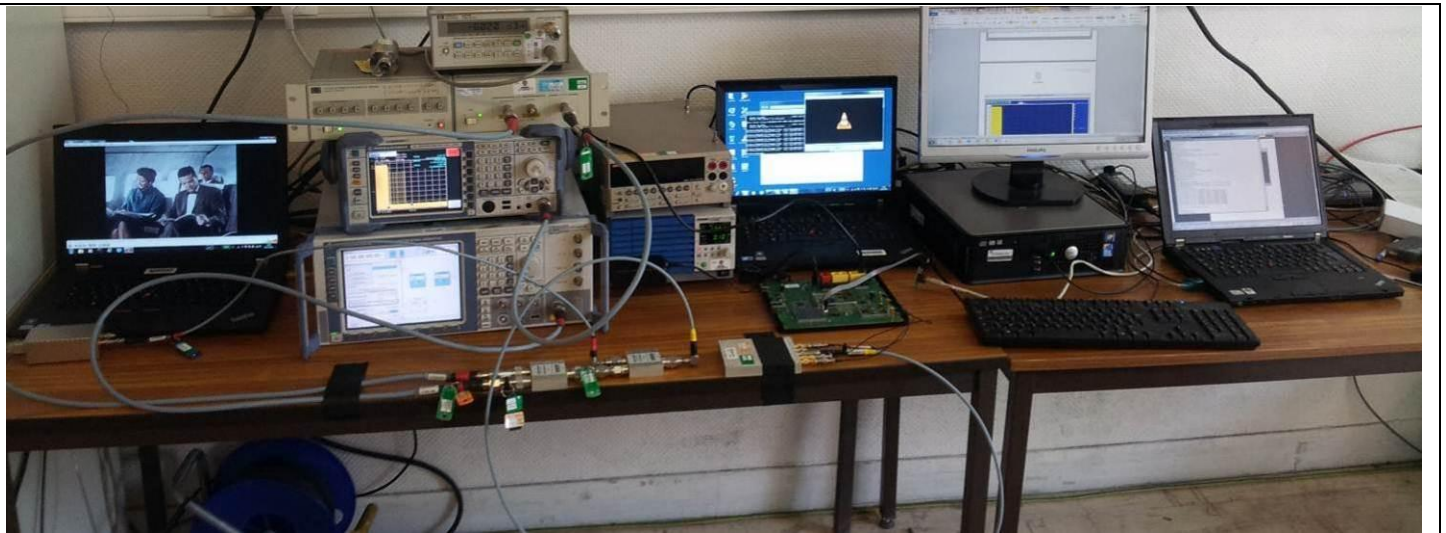
Sweep Time= 20s for Radar Test Signal 1 & 30s for Radar Test Signal 5

Sweep= Single Sweep

Sweep Point= 32000

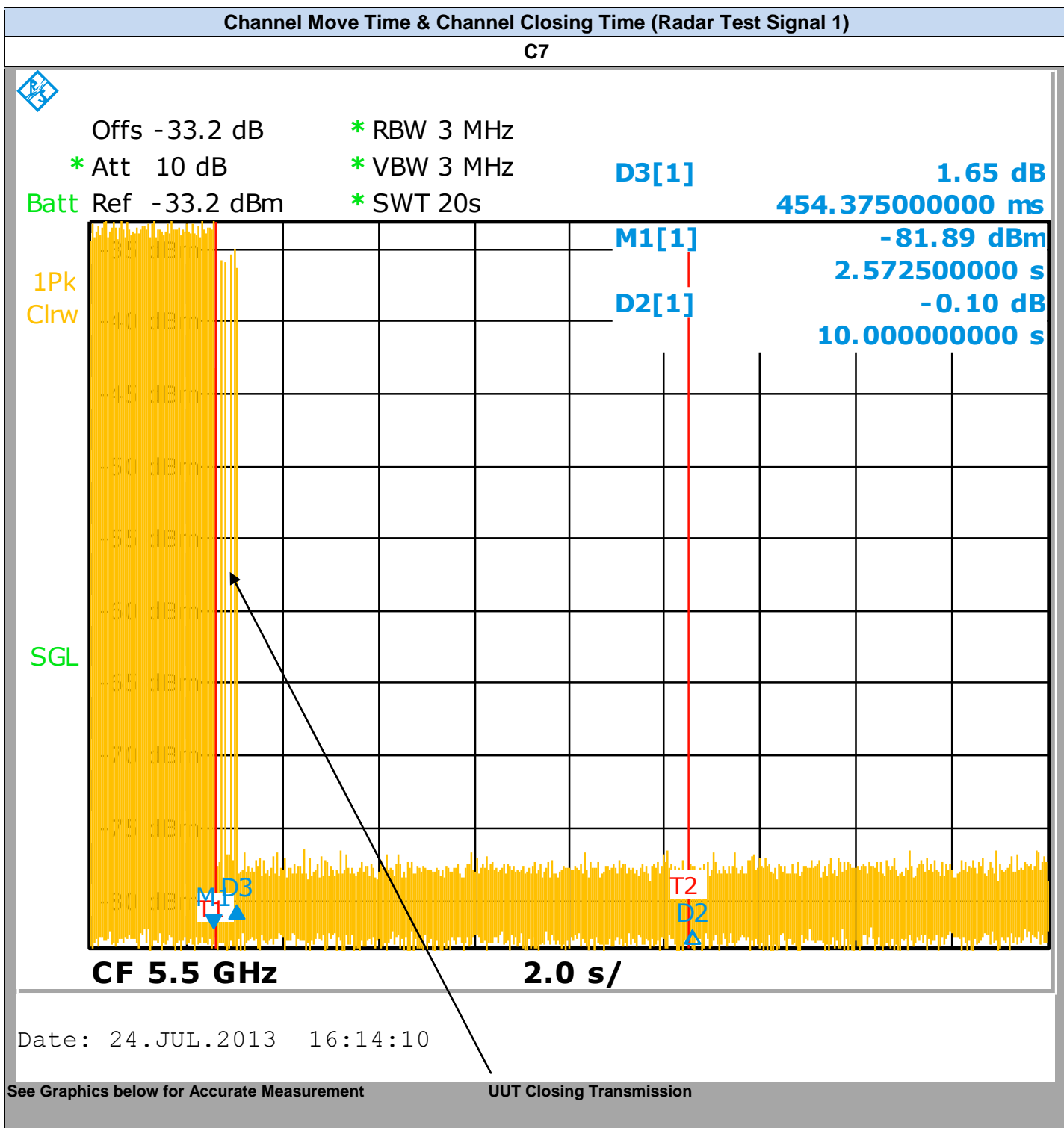
Trace= Clear/Write

Detector= Peak



Photograph for DFS Channel Move Time & Closing Transmission Time

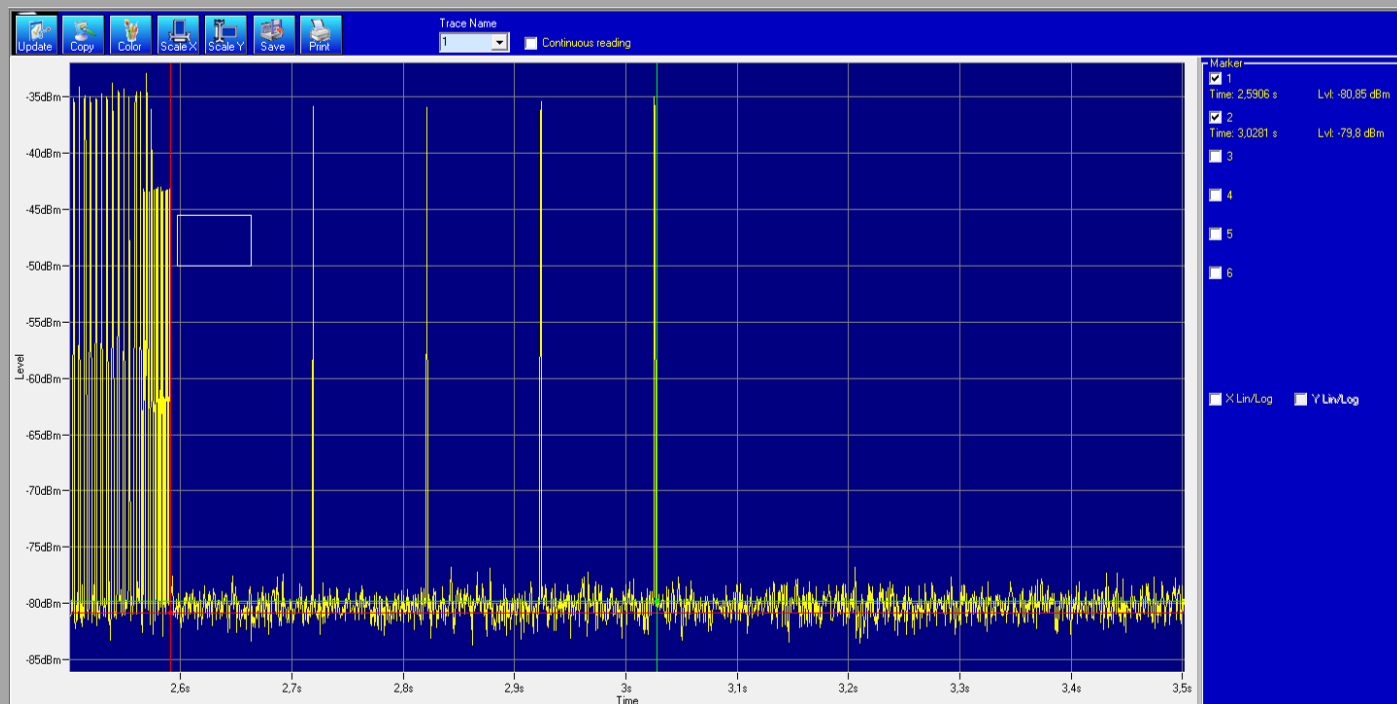
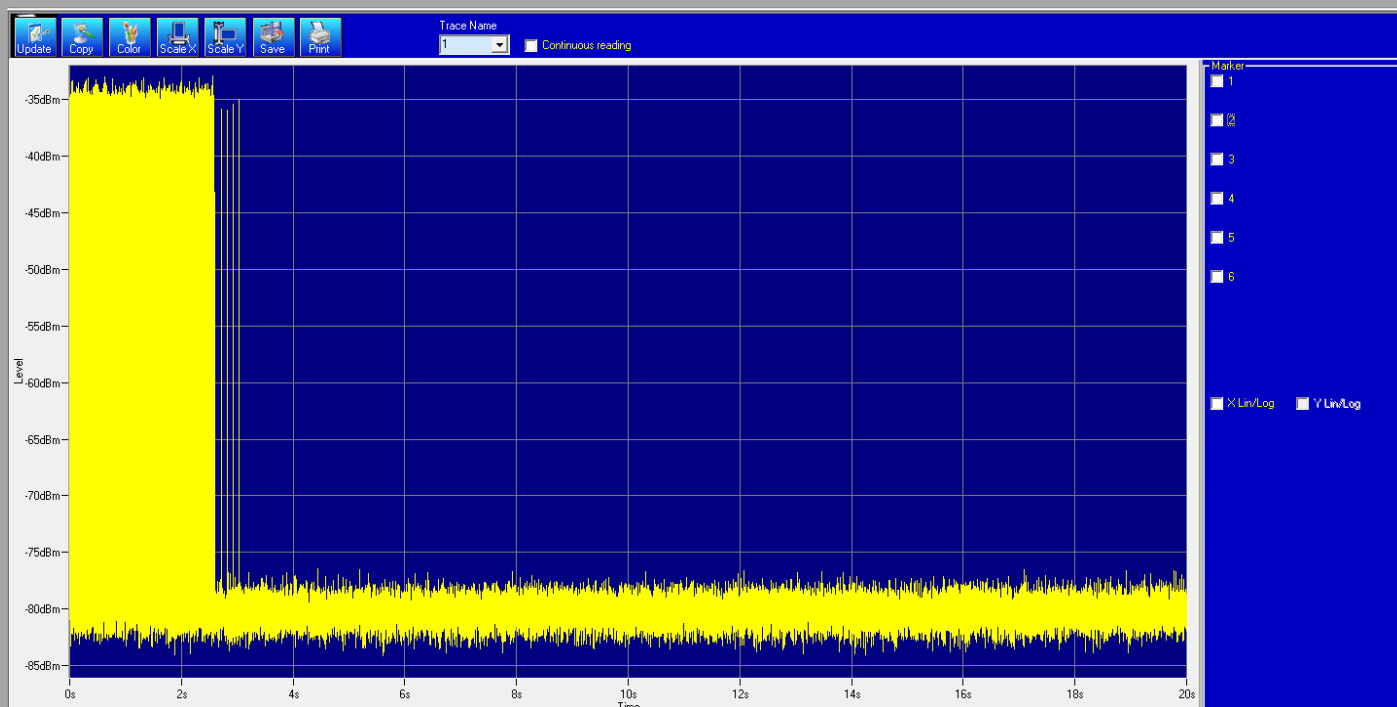
7.3. GRAPHIC & RESULTS





Channel Move Time & Channel Closing Time (Radar Test Signal 1)

C7

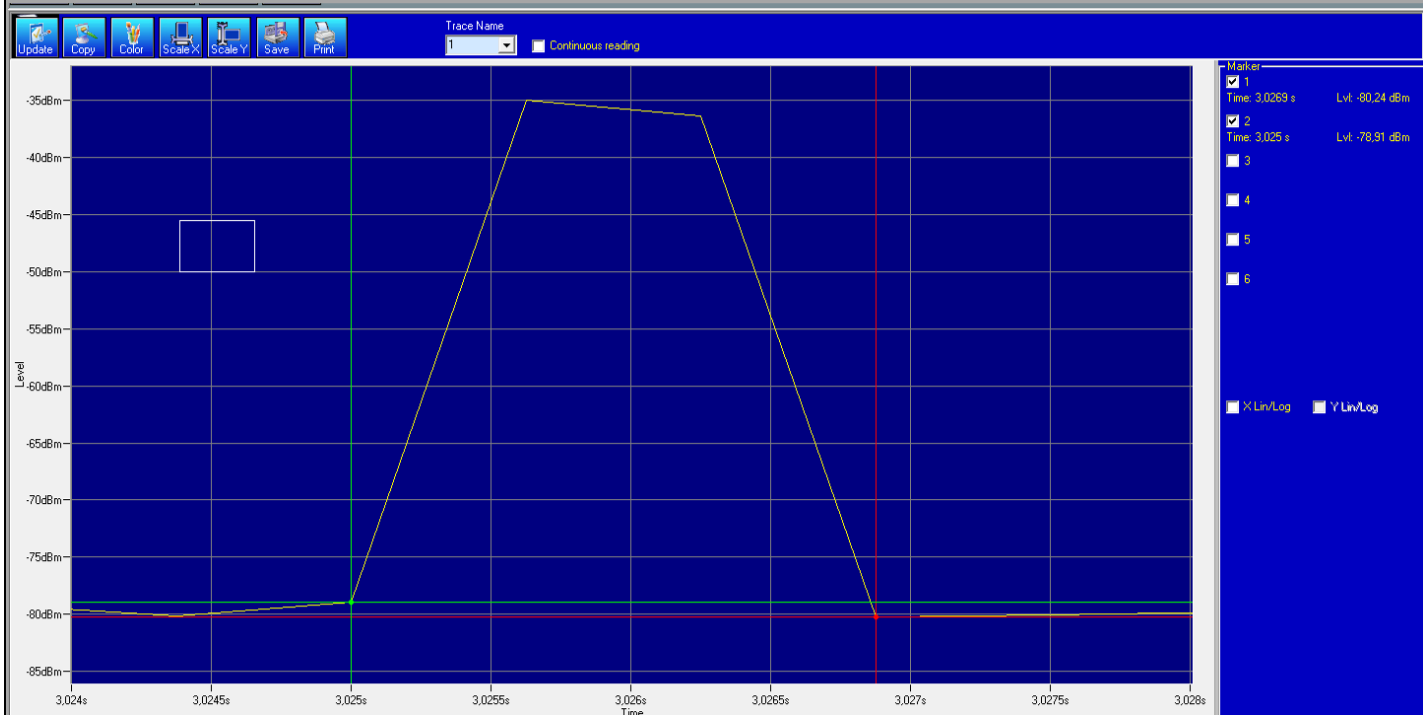
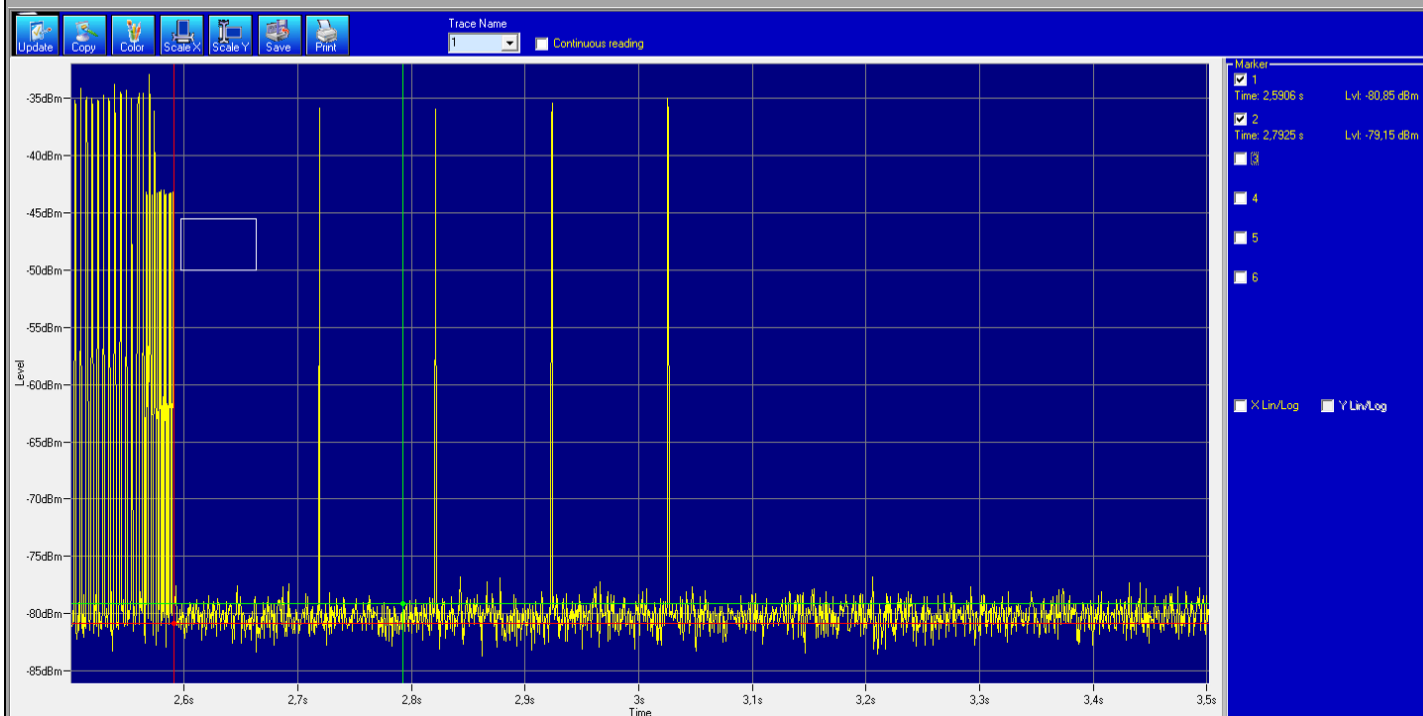


Channel Move Time= 3,0281-2,5906=0,4375s



Channel Move Time & Channel Closing Time (Radar Test Signal 1)

C7



Channel Closing Time= $4 \times (3,0269 - 3,025) = 0,0076s$

C7

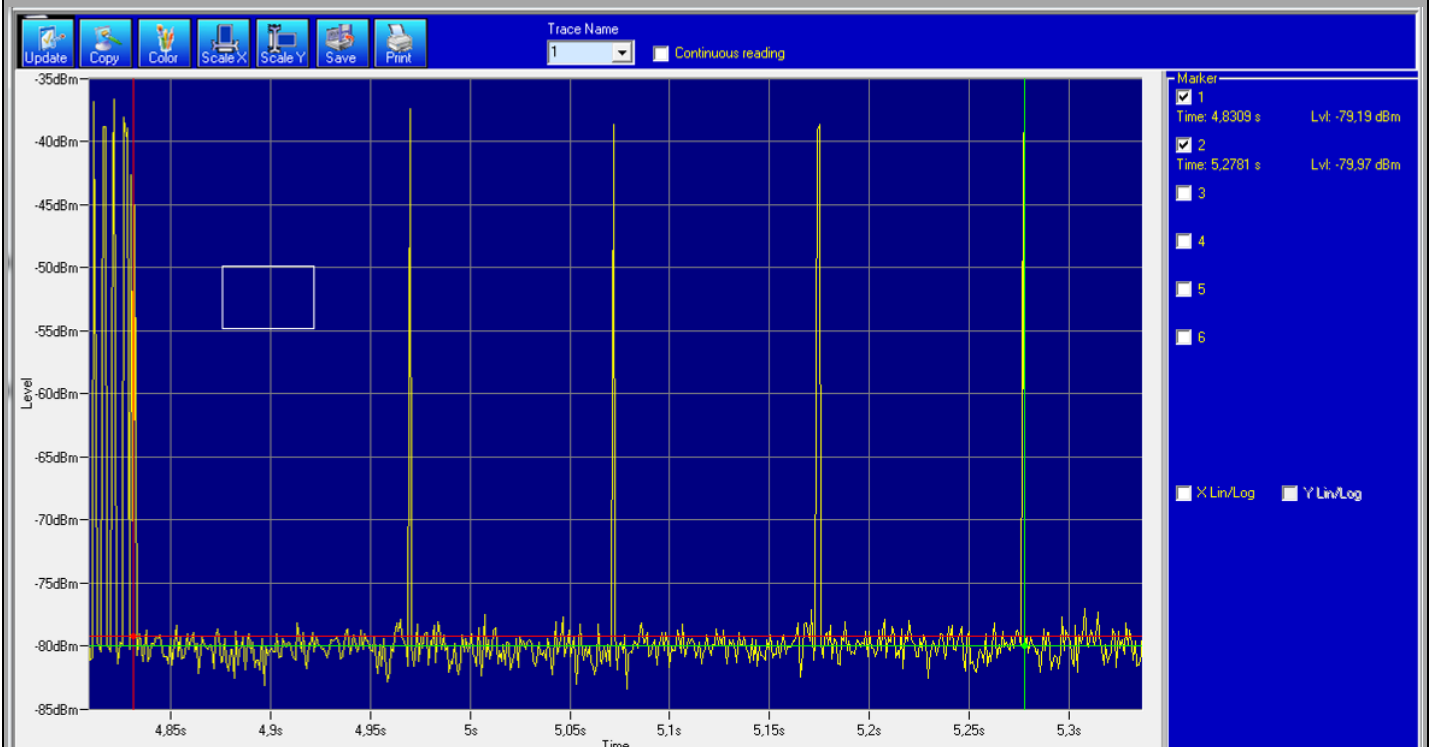
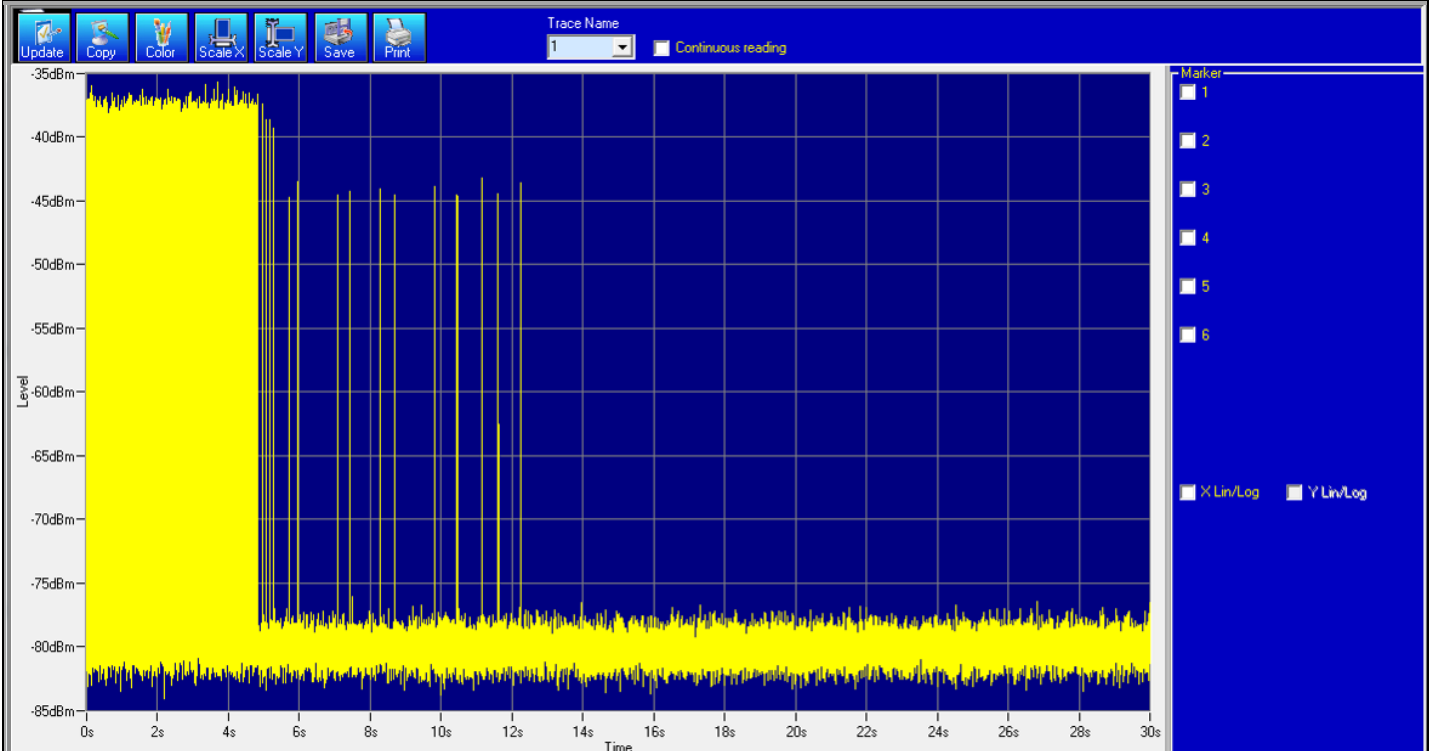
~~3.0 s~~

UUT Closing Transmission



Channel Move Time & Channel Closing Time (Radar Test Signal 5)

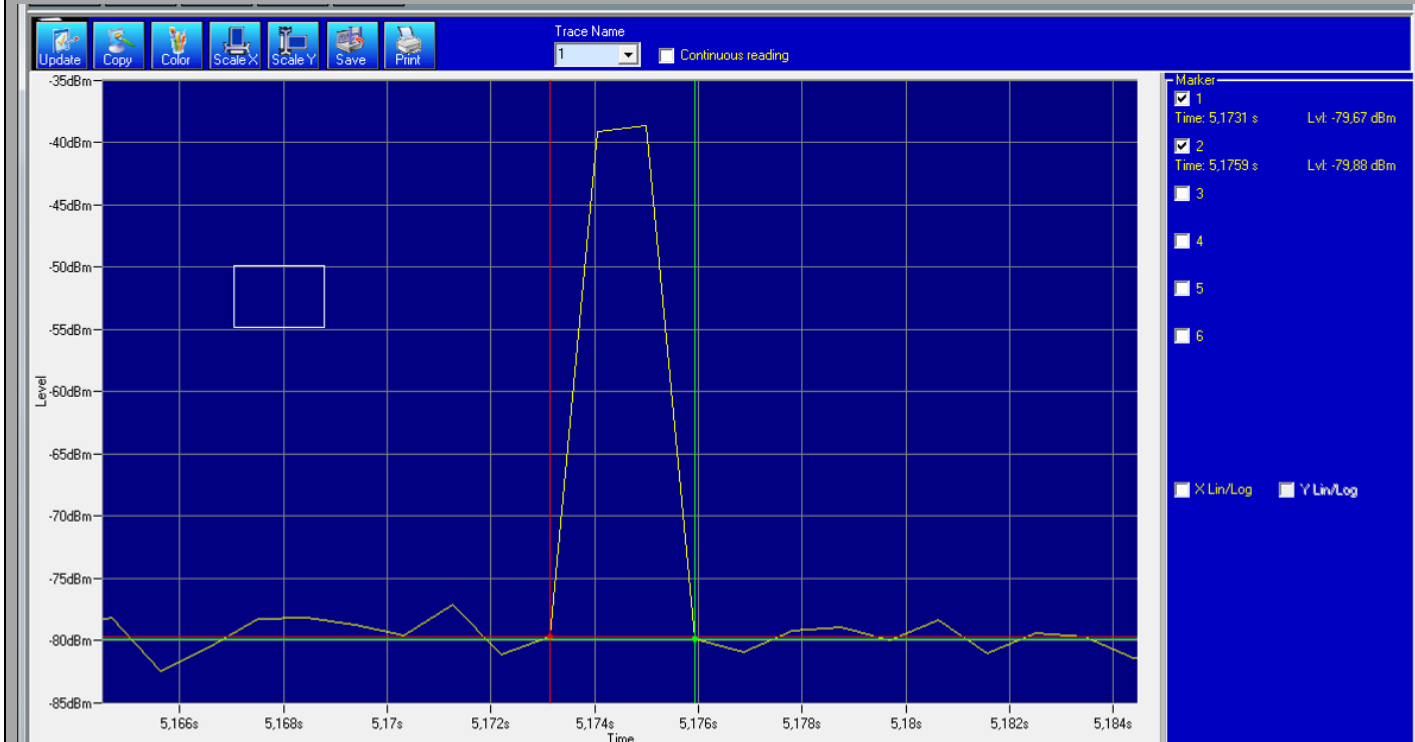
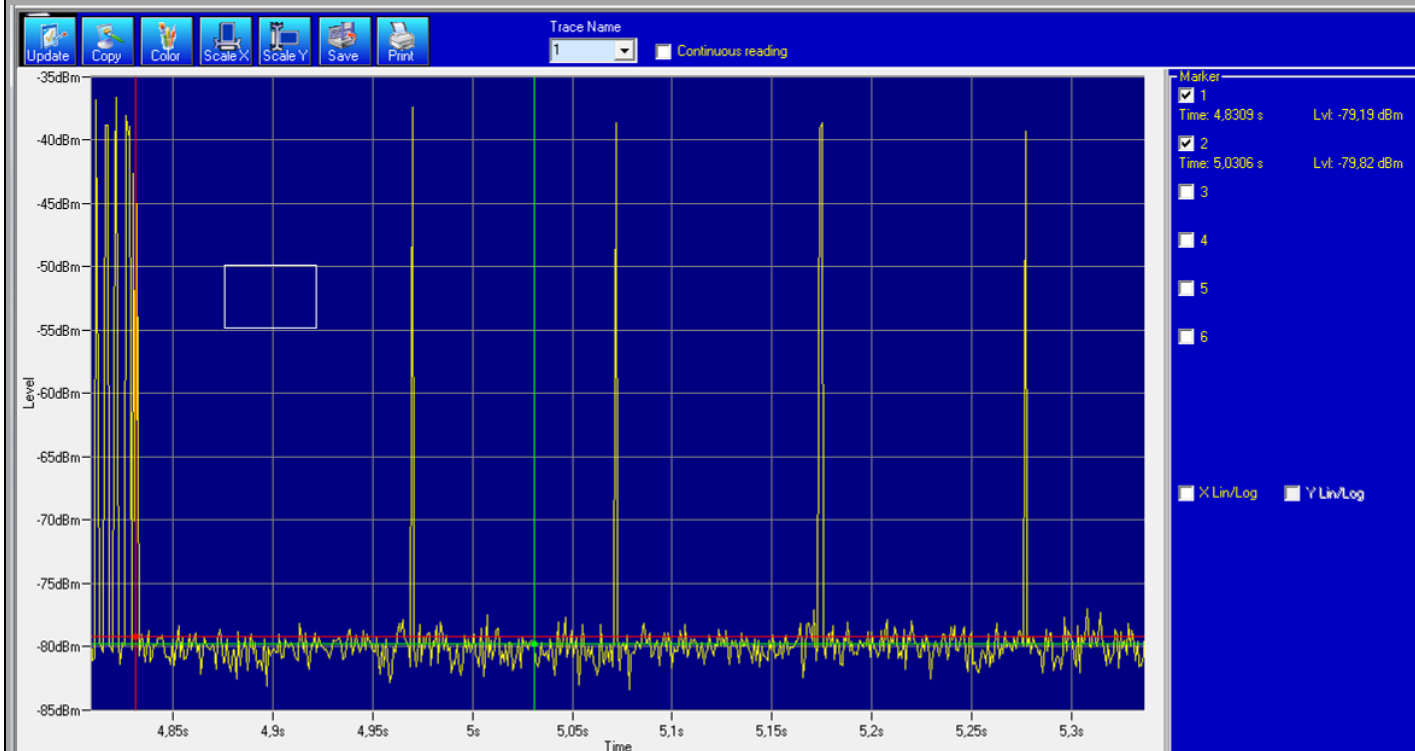
C7



Channel Move Time= 5,2781-4,8309=0,4472s

Channel Move Time & Channel Closing Time (Radar Test Signal 5)

C7



Channel Closing Time= $4 \times (5,1759 - 5,1731) = 0,0112s$



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

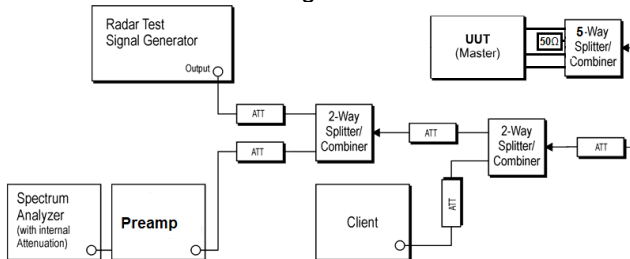
8. NON-OCCUPANCY PERIOD

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.



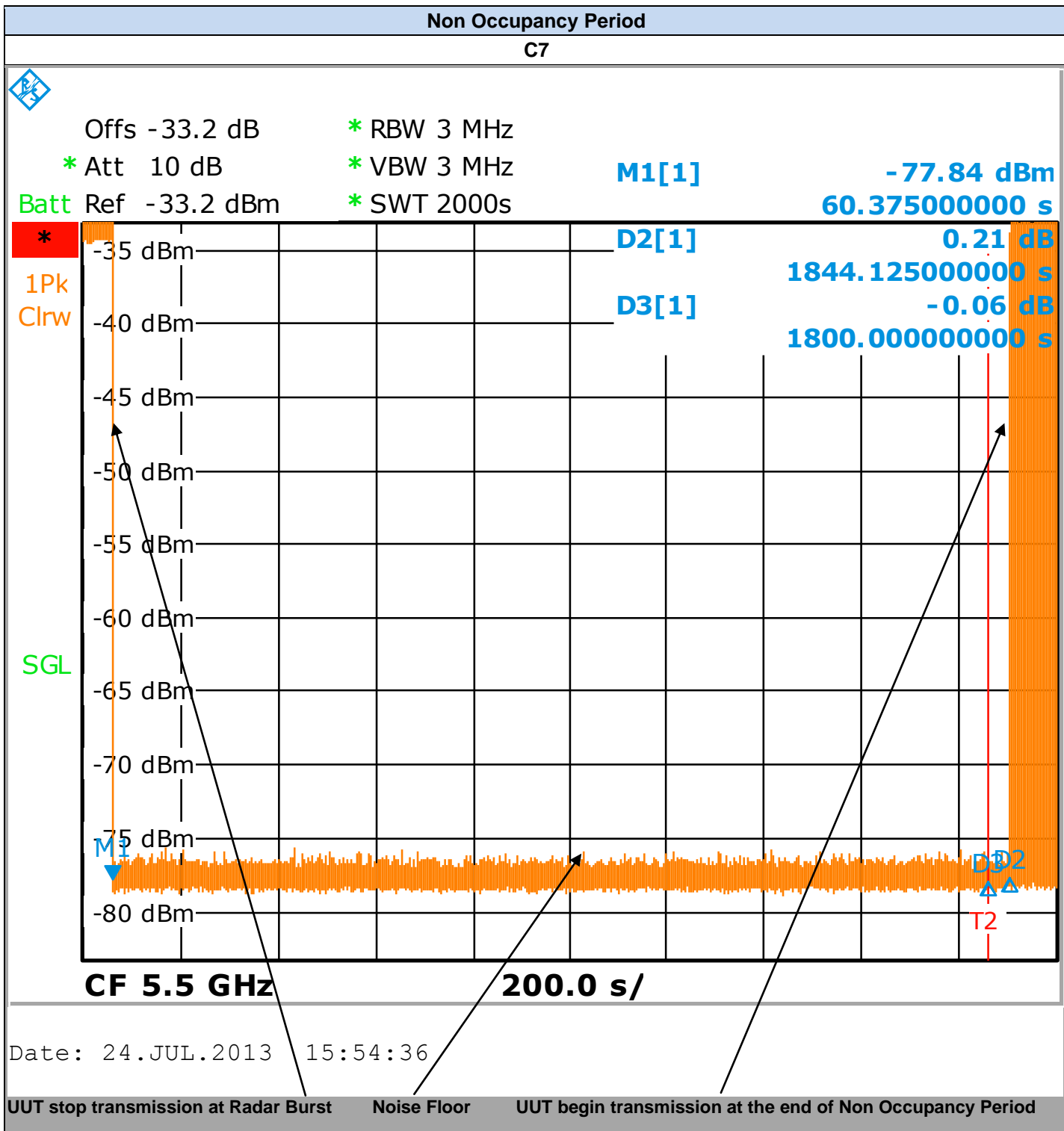
Spectrum Analyzer Setting:

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	Type	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) $\pm x(\text{dB}) / (\text{Hz})$	Limit for uncertainties $\pm y(\text{dB})$
TRANSMITTER REQUIREMENTS		
RF Frequency	$\pm 2 \cdot 10^{-8} \text{ Hz}$	$\pm 1 \cdot 10^{-5} \text{ Hz}$
Occupied Channel bandwidth	$\pm 100 \text{ kHz}$	-
RF power conducted	$\pm 0.6 \text{ dB}$	$\pm 1.5 \text{ dB}$
Temperature	$\pm 0.5^\circ\text{C}$	$\pm 1^\circ\text{C}$
Humidity	$\pm 2.5 \%$	$\pm 5 \%$
Time		$\pm 10 \%$



11. ANNEX

TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 2						
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	84,8	7			1057
2	2	69,4	8	1611		744
3	2	52,8	7	1026		294
4	2	58,4	11	1001		596
5	3	87,9	17	1130	923	432
6	1	79,1	7			812
7	1	68	20			702
8	3	66,3	15	1213	1920	301
9	2	86	8	1066		430
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 3

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	3	98,2	9	1535	1372	264
2	3	73,6	18	985	1379	670
3	2	96	9	931		1069
4	2	95,1	7	1755		457
5	2	75,7	9	1863		543
6	2	71,7	15	1452		84
7	2	74,5	17	1126		525
8	3	80,6	14	1615	1146	967
9	2	56,5	19	1319		291
10	3	55,2	15	993	1070	1016
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 4

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 5						
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	51,8	20			641
2	2	80,1	8	1641		875
3	2	88,2	8	1852		33
4	2	71,8	10	1048		476
5	2	91,8	6	1778		910
6	2	56,8	19	1212		570
7	1	69,6	13			637
8	2	94,6	13	1595		347
9	3	52,7	18	1682	1384	483
10	2	65,5	5	1082		39
11	3	68,6	17	1467	1397	337
12	1	94,1	14			378
13						
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 6

Bursts in Trial: 13

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 7

Bursts in Trial: 14

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	60,8	19			487
2	2	91	14	1147		817
3	1	57,8	9			597
4	1	77,6	8			20
5	2	66,3	13	1151		92
6	1	97,5	7			569
7	1	90,1	10			716
8	1	53	6			403
9	3	50,5	17	1524	1311	397
10	1	55,8	10			121
11	2	73,7	12	1777		285
12	3	55,3	12	968	1848	240
13	2	79,8	7	1709		178
14	3	84,3	6	1627	1577	180
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 8

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	2	65,3	10	1635		169
2	2	90,7	9	1682		356
3	1	87,7	18			265
4	1	82,7	6			216
5	1	85,2	20			370
6	2	67,9	6	1090		639
7	3	61,6	11	1413	990	778
8	2	73,1	7	1591		519
9	3	51,6	15	1882	1340	551
10	1	83,4	12			743
11	2	93,1	5	1741		660
12	2	88,6	7	1004		746
13	3	91,9	19	1291	1892	313
14	2	90,7	20	1628		362
15	1	52,4	17			37
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

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						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

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
16	2	70,7	18	1093		207
17	2	63,4	8	1080		132
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 11

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
18	2	65,7	15	1878		279
19						
20						

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 12						
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
15	3	77,1	11	1257	1093	477
16	2	81,7	7	1792		256
17	3	53,6	13	1304	1449	246
18	1	68,2	19			237
19	1	93,8	20			57
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 13

Bursts in Trial: 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

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 14

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	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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 15						
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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 16

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 17						
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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 18						
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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 19

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	2	61,4	18	1761		1229
2	3	69,1	7	1759	1639	1136
3	3	56,5	8	961	1228	508
4	1	87,2	19			993
5	2	96	7	1852		1374
6	3	51,8	15	1295	1517	522
7	3	71,8	17	1651	1422	1394
8	2	54,3	20	1296		952
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 20						
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	84,5	6			890
2	2	89,4	8	1712		681
3	2	86,5	13	1634		839
4	2	57,4	18	1601		1217
5	2	95,7	5	1062		798
6	3	94,5	5	1745	1189	216
7	2	70,5	12	1385		548
8	2	69,9	11	1924		134
9	2	96	13	1778		692
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 21						
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

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 22

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	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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 23						
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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 24						
Bursts in Trial: 13						
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	79,5	20			383
2	3	88,7	20	1519	1294	340
3	2	64,6	5	1619		597
4	2	65,1	17	1365		367
5	2	56,2	20	1095		229
6	3	50,7	11	1637	1159	633
7	3	87,7	14	944	1559	719
8	3	65,6	9	1644	1834	745
9	2	81,4	13	1455		898
10	1	90,7	15			382
11	2	85,6	9	1419		461
12	2	88,3	17	1801		103
13	2	59	14	1701		698
14						
15						
16						
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

Trial Number : 25

Bursts in Trial: 14

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	90,3	20	1361		325
2	2	63,8	10	1434		802
3	1	68,6	5			129
4	1	69,6	13			410
5	3	75,2	13	1208	1604	189
6	2	82,1	18	1766		131
7	2	92,5	18	1688		91
8	2	65,1	17	1648		822
9	3	99,6	18	1235	1393	742
10	2	81,9	18	1280		705
11	2	82,3	12	1255		849
12	1	94,3	5			19
13	2	55,9	15	1784		741
14	3	83,1	15	1226	1329	205
15						
16						
17						
18						
19						
20						

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



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						
20						

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 27						
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
17						
18						
19						
20						

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



TYPE 5 PARAMETER SHEET						Rohde & Schwarz K6 Pulse Sequencer
Trial Number : 28						
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	3	78,2	15	1832	1762	213
2	2	66,4	8	1589		177
3	2	79,5	5	1417		52
4	3	71	13	1906	1049	75
5	1	85,5	9			515
6	2	56,2	14	1332		209
7	2	82,3	12	1444		296
8	2	55,9	18	1519		49
9	2	73,5	6	1892		371
10	1	94,9	10			184
11	3	59,7	13	974	1059	240
12	1	84	20			593
13	2	87,4	9	1647		77
14	1	97,5	13			567
15	2	74,8	7	1235		518
16	2	90	19	1543		266
17	2	53,9	9	1207		557
18						
19						
20						

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



TYPE 5 PARAMETER SHEET

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
16	3	85,5	8	1732	1580	54
17	2	65,2	19	1483		368
18	1	74	20			297
19						
20						

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



TYPE 5 PARAMETER SHEET

Rohde & Schwarz
K6 Pulse Sequencer

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
20						

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