FCC Dynamic Frequency Selection Test Report

according to

47 CFR FCC Part 15 Subpart E § 15.407

Model Name	:	**Wi-Fi 5GHz Access Point**
Model No.	:	**TG233**
Filing Type	:	**New Application**
FCC ID	:	**RSE-TG233**
Trade Name	:	**technicolor**
Applicant	:	**Technicolor Delivery Technologies Belgium** Prins Boudewijnlaan 47 B-2650 Edegem Belgium
Operate Mode	:	**Master** **Slave (without radar detection function)**

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a (5250 ~ 5350MHz / 5470 ~ 5725MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009**,**47 CFR FCC Part 15 Subpart E**, **KDB 789033 D01 v01r03**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FZ3N0114	Rev.01	Initial issue of report	Jan. 29, 2014

Certificate No.: CB10212045

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart E § 15.407

Model Name : Wi-Fi 5GHz Access Point
Model No. : TG233
Trade Name : technicolor
Applicant : Technicolor Delivery Technologies Belgium
Prins Boudewijnlaan 47 B-2650 Edegem Belgium

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Oct. 30, 2013 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1 SUMMARY OF THE TEST RESULT

Applied Standard: OET Order 06-96A (2006)			
Part	Appendix	Description of Test	Result
4.2	7.8.1	UNII Detection Bandwidth Measurement	Complies
4.3	7.8.2.1 7.8.2.2 7.8.2.3	Beginning and End of the Channel Availability Check Time	Complies
4.4	7.8.3	Channel Shutdown and Non-Occupancy Period for Master mode	Complies
4.5	7.8.3	Channel Shutdown and Non-Occupancy for Slave without radar detection mode	Complies
4.6	7.4	Statistical Performance Check Measurement	Complies

Note: For without radar detection function, only Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period are required to be performed.

2 INFORMATION PROVIDED BY THE MANUFACTURER

Model Name: Wi-Fi 5GHz Access Point

Model No.: TG233

Trade Name: technicolor

Power Supply: Switching-Type, 12Vdc, 1A, Manufacturer: Huntkey, Model: HKA01212010-2G

DSL37094480

AC Power Cord: Wall-mount, 2pin

Hardware Version: PEM2

Interface Availability

Interface / Model Name	DC 12Vdc 1A	Ethernet 10/100/ 1000 Mbps	WLAN IEEE 802.11n 5G (20MHz / 40MHz)
TG233	●	●	●

● : Equipped

○ : Not Equipped

2.1 Application of harmonized standard

US Standard: 47 CFR FCC Part 15 Subpart E § 15.407
ANSI C63.10-2009
KDB789033 D01 General UNII Test Procedures v01r03, 04/08/2013
FCC OET Order 06-96A (2006)

2.2 Cabling Attached to the Equipment

Table 1- Cable and Interconnection

Interface	Cable type	Cable length delivered with the modem	"Real life" Cable length that can be attached to this type of interface	Cable length to be used for testing	Internal / external connection
Eth1	UTP Cat 5	2 meter	> 10 meter	Two 10 meter cables	Internal
AC power	-	-	-	-	External

2.3 Panel Drawing

Eth1 **Power**

3 GENERAL INFORMATION

3.1 UUT Information

3.1.1 Information

Items	Description			
Product	Stand alone			
Model No.	TG233			
FCC ID	RSE-TG233			
Power Type	From power adapter			
EUT Stage	■	Product Unit	□	Pre-Sample
Antenna Type	Please see Section 3.2			
Product Type	IEEE 802.11a: WLAN (4TX, 4RX) IEEE 802.11n (20MHz): WLAN(4TX, 4RX) IEEE 802.11n (40MHz): WLAN(4TX, 4RX)			
Nominal Chennel Bandwidth	20MHz / 40MHz			
Modulation	802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11n: See the below table.			
Data Rate (Mbps)	11a mode:OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode:(MCS0~MCS31); 11n(40MHz)mode:(MCS0~MCS31)			
Operating Band	5250~5350MHz		■	IEEE 802.11a
			■	IEEE 802.11n (20MHz)
			■	IEEE 802.11n (40MHz)
	5470~ 5725 MHz		■	IEEE 802.11a
			■	IEEE 802.11n (20MHz)
			■	IEEE 802.11n (40MHz)
TPC Function	■	With TPC	□	Without TPC
Beam forming Function	□	With Beam forming	■	Without Beam forming, but it has Total Max Composition Gain
DFS Operating Mode(s)	■	Master	■	Slave without radar detection
DFS Function	■	5250~5350MHz		
	■	5470~5725MHz		
	□	5600~5650MHz		
User Access Restrictions	■	DFS controls (hardware or software) related to radar detection are NOT accessible to the user.		
Software Version	v35.1.0.30			
Associated Devices	Power supply x 1			

802.11n Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11n 20MHz 4 stream	MCS0	6.5	7.2	11n 40MHz 4 stream	MCS0	13.5	15
	MCS1	13	14.4		MCS1	27	30
	MCS2	19.5	21.7		MCS2	40.5	45
	MCS3	26	28.9		MCS3	54	60
	MCS4	39	43.3		MCS4	81	90
	MCS5	52	57.8		MCS5	108	120
	MCS6	58.5	65		MCS6	121.5	135
	MCS7	65	72.2		MCS7	135	150
11n 20MHz 4 stream	MCS8	13	14.4	11n 40MHz 4 stream	MCS8	27	30
	MCS9	26	28.9		MCS9	54	60
	MCS10	39	43.3		MCS10	81	90
	MCS11	52	57.8		MCS11	108	120
	MCS12	78	86.7		MCS12	162	180
	MCS13	104	115.6		MCS13	216	240
	MCS14	117	130		MCS14	243	270
	MCS15	130	144.4		MCS15	270	300
11n 20MHz 4 stream	MCS16	19.5	21.7	11n 40MHz 4 stream	MCS16	40.5	45
	MCS17	39	43.3		MCS17	81	90
	MCS18	58.5	65		MCS18	121.5	135
	MCS19	78	86.7		MCS19	162	180
	MCS20	117	130		MCS20	243	270
	MCS21	156	173.3		MCS21	324	360
	MCS22	175.5	195		MCS22	364.5	405
	MCS23	195	216.7		MCS23	405	450
11n 20MHz 4 stream	MCS24	26	28.9	11n 40MHz 4 stream	MCS24	54	60
	MCS25	52	57.8		MCS25	108	120
	MCS26	78	86.7		MCS26	162	180
	MCS27	104	115.6		MCS27	216	240
	MCS28	156	173.3		MCS28	324	360
	MCS29	208	231.1		MCS29	432	480
	MCS30	234	260		MCS30	486	540
	MCS31	260	288.9		MCS31	540	600

3.1.2 Operating frequency bands and mode of UUT

Operational Mode	Operating Frequency Range		
	5250~5350MHz	5600~5650MHz	5470~5725MHz
Master	✓	-	✓
Slave without radar detection	✓	-	✓

The UUT has disabled the 5600 ~ 5650 MHz band

3.1.3 UUT SOFTWARE AND FIRMWARE VERSION

No.	Model Name	Model No.	Software / Firmware Version
1	Wi-Fi 5GHz Access Point	TG233	1.0.0.0

3.1.4 Accessories

Power	Brand	Model	Rating
Switching-Type Power Adapter	Huntkey	HKA01212010-2G	Input:100-240V~0.5A 50/60Hz Output: 12.0V, 1.0A

3.1.5 DESCRIPTION OF SUPPORT UNITS

<Operating Mode: Master>:

No.	Product	Brand	Model No.	FCC ID	Software Version
1	Notebook	DELL	D520	E2KWM3945ABG	Win XP
2	Notebook	DELL	D520	E2KWM3945ABG	Win XP
3	Wi-Fi 5GHz Access Point	technicolor	TG233	RSE-TG233	1.0.0.0

Note 1: This device No.3 was functioned as a □ Master ■ Slave device during the DFS test.

<Operating Mode: Slave without radar detection>:

No.	Product	Brand	Model No.	FCC ID	Software Version
1	Notebook	DELL	D520	E2KWM3945ABG	Win XP
2	Notebook	DELL	D520	E2KWM3945ABG	Win XP
3	Wi-Fi 5GHz Access Point	technicolor	TG233	RSE-TG233	1.0.0.0

Note 1: This device No.3 was functioned as a ■ Master □ Slave device during the DFS test.

3.2 Table for Filed Antenna

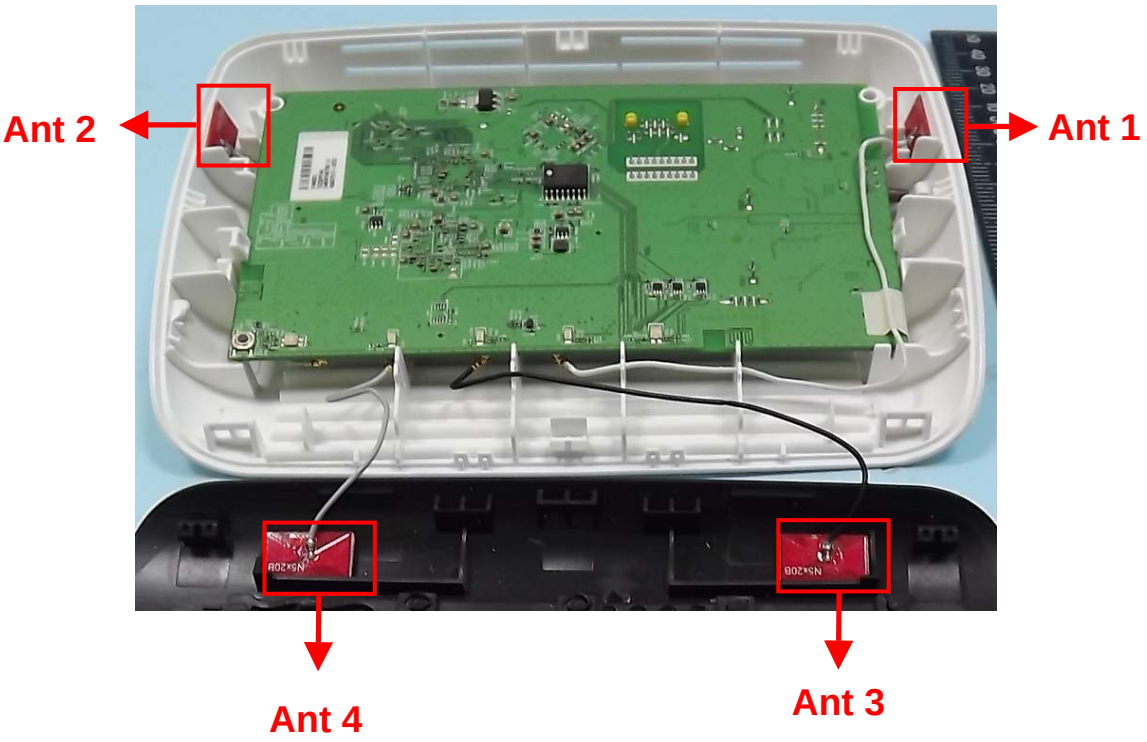
Ant.	Brand	Model Name	Antenna Type	Connector
1	Airgain	N5X20B-T-PK1-W170UR2	PCB Antenna	I-PEX
2	Airgain	N5X20B-T-PK1-G85UR2	PCB Antenna	I-PEX
3	Airgain	N5X20B-T-PK1-G85UR2	PCB Antenna	I-PEX
4	Airgain	N5X20B-T-PK1-B130UR2	PCB Antenna	I-PEX

Antenna & Bandwidth

Antenna	4 steam (TX)	
Bandwidth Mode	20 MHz	40 MHz
802.11a	V	X
802.11n	V	V

Bandwidth	Total Max Composition Gain (dBi) for Band2 (5250MHz~5350MHz)				
	Ant. 1 + 2 + 3 + 4				
	5260MHz	5270MHz	5300MHz	5310MHz	5320MHz
20MHz	-0.62	-	-0.37	-	-0.35
40MHz	-	-0.63	-	-0.37	-

Bandwidth	Total Max Composition Gain (dBi) for Band3 (5470MHz~5725MHz)						
	Ant. 1 + 2 + 3 + 4						
	5500MHz	5510MHz	5550MHz	5580MHz	5670MHz	5680MHz	5700MHz
20MHz	0.03	-	-	0.29	-	0.85	0.58
40MHz	-	-0.30	-0.02	-	0.79	-	-



3.3 Table for Carrier Frequencies

11a and 11n(Nominal Channel Bandwidth 20MHz)

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	56	5280 MHz	64	5320 MHz
5470~5725 MHz Band 3	100	5500 MHz	116	5580 MHz
	104	5520 MHz	132	5660 MHz
	108	5540 MHz	136	5680 MHz
	112	5560 MHz	140	5700 MHz

Note: Master mode doesn't support 5700MHz, slave without radar detection mode supports 5700MHz.

11n(Nominal Channel Bandwidth 40MHz)

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	54	5270 MHz	62	5310 MHz
5470~5725 MHz Band 3	102	5510 MHz	134	5670 MHz
	110	5550 MHz	-	-

3.4 Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Note	Channel	Data Rate	Antenna
UNII Detection Bandwidth Measurement (Radiated)	11a	Band 2~3/BPSK	60/100	6Mbps	1+2+3+4
	11n(20MHz)		60/100	MCS0	1+2+3+4
	11n(40MHz)		62/102	MCS0	1+2+3+4
Initial Channel Availability Check Time Measurement t (Radiated)	11a	Band 2~3/BPSK	60/100	6Mbps	1+2+3+4
	11n(20MHz)		60/100	MCS0	1+2+3+4
	11n(40MHz)		62/102	MCS0	1+2+3+4
Channel Shutdown and Non-Occupancy Period for Master mode (Radiated)	11a	Band 2~3/BPSK	60/100	6Mbps	1+2+3+4
	11n(20MHz)		60/100	MCS0	1+2+3+4
	11n(40MHz)		62/102	MCS0	1+2+3+4
Channel Shutdown and Non-Occupancy for Slave without radar detection mode (Radiated)	11a	Band 2~3/BPSK	60/100	6Mbps	1+2+3+4
	11n(20MHz)		60/100	MCS0	1+2+3+4
	11n(40MHz)		62/102	MCS0	1+2+3+4
Statistical Performance Check (Radiated)	11a	Band 2~3/BPSK	60/100	6Mbps	1+2+3+4
	11n(20MHz)		60/100	MCS0	1+2+3+4
	11n(40MHz)		62/102	MCS0	1+2+3+4

3.5 List of measurements for Master mode

Nominal Channel Bandwidth 802.11a /CH 60

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11a/CH 60

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection > 90%	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

Nominal Channel Bandwidth 802.11a /CH 100

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11a/CH 100

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection > 90%	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

Nominal Channel Bandwidth 802.11n 20MHz/CH 60

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 20MHz/CH 60

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection >90%	Complies
Channel Availability Check Time	≧ 60s Type1 Radar Detection	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

Nominal Channel Bandwidth 802.11n 20MHz/CH 100

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 20MHz/CH 100

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection > 90%	Complies
Channel Availability Check Time	≧ 60s Type1 Radar Detection	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

Nominal Channel Bandwidth 802.11n 40MHz/CH 62

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 40MHz/CH 62

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection > 90%	Complies
Channel Availability Check Time	≧ 60s Type1 Radar Detection	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

Nominal Channel Bandwidth 802.11n 40MHz/CH 102

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 40MHz/CH 102

Parameter	**Test Value**	**Test Result**
DFS Detection Threshold	≥ 200mW =-61dBm < 200mW = -63dBm	Complies
U-NII Detection Bandwidth	Type1 Radar Detection > 90%	Complies
Channel Availability Check Time	≧ 60s Type1 Radar Detection	Complies
Statistical Performance Check (In-Service Monitoring)	30 time Type1+4 & 5 Radar Detection > 80% Type 6 Radar Detection > 70%	Complies
Channel Move Time	Type 1& Type 5 < 10s	Complies
Channel Closing Transmission Time	Type 1& Type 5 < 260ms	Complies
Non-Occupancy Period	Type 1 ≧ 30 min	Complies
Uniform Spreading	Random change channel	Complies

3.6 List of measurements for Slave without radar detection mode

Nominal Channel Bandwidth 802.11a/CH 60

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11a/CH 60
Parameter		**Test Value**	**Test Result**
Channel Move Time		< 10s	Complies
Channel Closing Transmission Time		< 260ms	Complies
Non-associated test (for salve without Radar detection)		≧ 30 min , should not transmit any beacon or data	Complies

Nominal Channel Bandwidth 802.11a/CH 100

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11a/CH 100
Parameter		**Test Value**	**Test Result**
Channel Move Time		< 10s	Complies
Channel Closing Transmission Time		< 260ms	Complies
Non-associated test (for salve without Radar detection)		≧ 30 min , should not transmit any beacon or data	Complies

Nominal Channel Bandwidth 802.11n 20MHz/CH 60

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 20MHz/CH 60
Parameter		**Test Value**	**Test Result**
Channel Move Time		< 10s	Complies
Channel Closing Transmission Time		< 260ms	Complies
Non-associated test (for salve without Radar detection)		≧ 30 min , should not transmit any beacon or data	Complies

Nominal Channel Bandwidth 802.11n 20MHz/CH 100

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 20MHz/CH 100

Parameter	**Test Value**	**Test Result**
Channel Move Time	< 10s	Complies
Channel Closing Transmission Time	< 260ms	Complies
Non-associated test (for salve without Radar detection)	≧ 30 min , should not transmit any beacon or data	Complies

Nominal Channel Bandwidth 802.11n 40MHz/CH 62

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 40MHz/CH 62

Parameter	**Test Value**	**Test Result**
Channel Move Time	< 10s	Complies
Channel Closing Transmission Time	< 260ms	Complies
Non-associated test (for salve without Radar detection)	≧ 30 min , should not transmit any beacon or data	Complies

Nominal Channel Bandwidth 802.11n 20MHz/CH 102

Temperature	23℃	**Humidity**	62%
Test Engineer	Will Tung	**Configurations**	802.11n 40MHz/CH 102

Parameter	**Test Value**	**Test Result**
Channel Move Time	< 10s	Complies
Channel Closing Transmission Time	< 260ms	Complies
Non-associated test (for salve without Radar detection)	≧ 30 min , should not transmit any beacon or data	Complies

4 DYNAMIC FREQUENCY SELECTION TEST RESULT

4.1 General DFS Information

4.1.1 Working Modes And Required Test Items

47 CFR FCC Part 15 Subpart E § 15.407**:** U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

Master Device Requirements:

(1) Before initiating a network on a channel, which has not been identified as an Available Channel, the master device shall perform a Channel Availability Check to ensure that there is no radar operating on the channel.

(2) During normal operation, the master device shall monitor the Operating Channel (In-Service Monitoring) to ensure that there is no radar operating on the channel. When the master device has detected a radar signal during In-Service Monitoring, the Operating Channel is made unavailable. The master device shall instruct all its associated slave devices to stop transmitting on this (to become unavailable) channel.

(3) The master device shall not resume any transmissions on this Unavailable Channel during a period of time after a radar signal was detected. This period is referred as the Non-Occupancy Period.

Table 1: Applicability of DFS requirements prior to use a channel

Requirement	Operational Mode	
	Master	Client without radar detection
DFS Detection Threshold	✓	Not required
Channel Availability Check Time	✓	Not required
Non-Occupancy Period	✓	Not required
Uniform Spreading	✓	Not required
U-NII Detection Bandwidth	✓	Not required

Table 2: Applicability of DFS requirements during normal operation.

Requirement	Operational Mode	
	Master	Client without radar detection
DFS Detection Threshold	✓	Not required
In-Service Monitoring	✓	Not required
Channel Closing Transmission Time	✓	✓
Channel Move Time	✓	✓
U-NII Detection Bandwidth	✓	Not required

4.1.2 TEST LIMITS AND RADAR SIGNAL PARAMETERS

DETECTION THRESHOLD VALUES

Table 3: DFS Detection Thresholds for Master and Client Devices With Radar Detection.

Maximum Transmit Power	Value (See Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1.)
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2.)
U-NII Detection Bandwidth	Minimum 80% of the UNII 99% transmission power bandwidth. (See Note 3.)
Note 1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows: • For the Short Pulse Radar Test Signals this instant is the end of the Burst. • For the Frequency Hopping radar Test Signal, this instant is the end of the last radar Burst generated. • For the Long Pulse Radar Test Signal this instant is the end of the 12 second period defining the Radar Waveform. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

4.1.3 Radar Test Waveforms Minimum Step

Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

4.1.4 Short Pulse Radar Test Waveforms (Type 1~4)

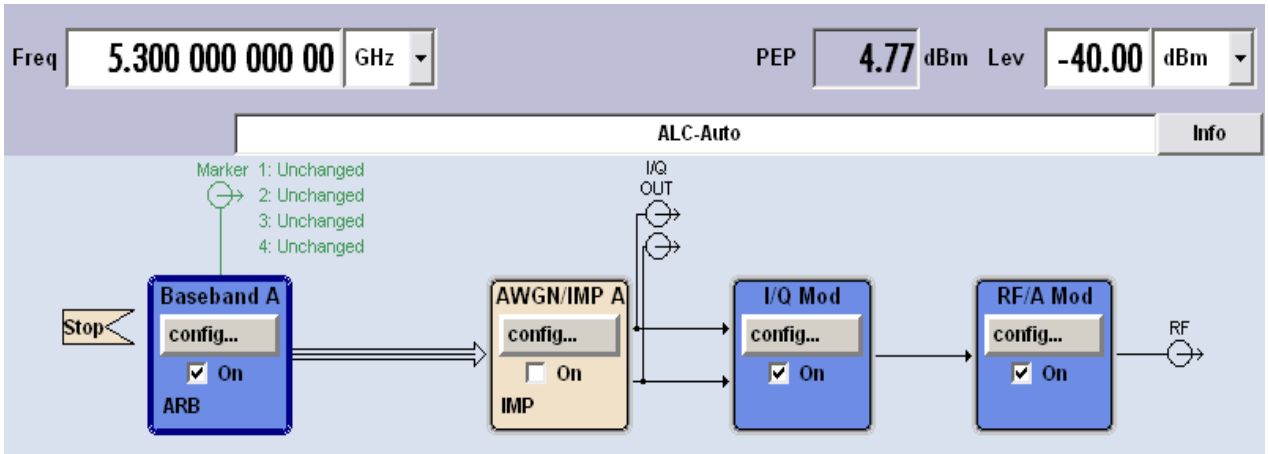
Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Table 5: Short Pulse Radar Test Waveforms.

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
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 Types 1-4)		80%		120	

A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

Radar Types (1~4) System Diagram



Used R&S SMU200A (Vector SG with one ARB) or SG + ARB

B11: Base-band Generator with ARB (16 M samples) and Digital Modulation

B13: Base-band Main Module

B106: frequency range (100 kHz to 6 GHz)

For selecting the waveform parameters from within the bounds of the signal type, system were random

selection using uniform distribution.

4.1.5 Long Pulse Radar Test Waveform (Type 5)

Table 6: Long Pulse Radar Test Waveform

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

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse radar test signal. If more than 30 waveforms are used for the Long Pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms. Each waveform is defined as follows:

(1) The transmission period for the Long Pulse Radar test signal is 12 seconds.

(2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.

(3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.

(4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.

(5) Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulses in different Bursts may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.

(6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time between the first and second pulses is chosen independently of the time between the second and third pulses.

(7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst_Count. Each interval is of length (12,000,000 / Burst_Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst_Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

A representative example of a Long Pulse radar test waveform:

(1) The total test signal length is 12 seconds.

(2) 8 Bursts are randomly generated for the Burst_Count.

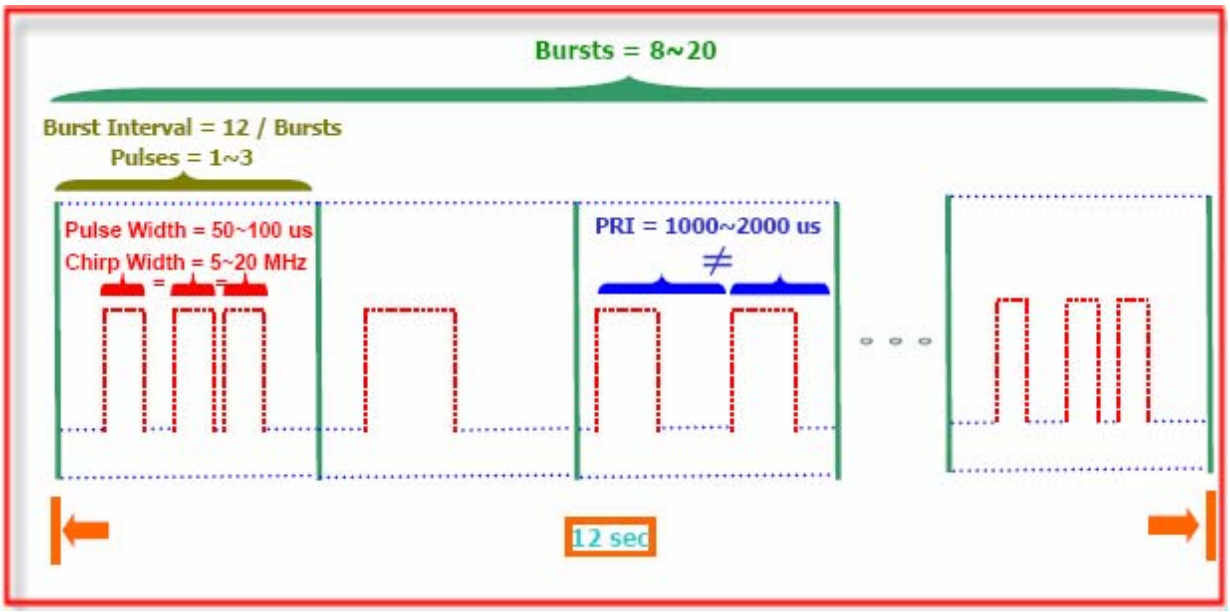
(3) Burst 1 has 2 randomly generated pulses.

(4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.

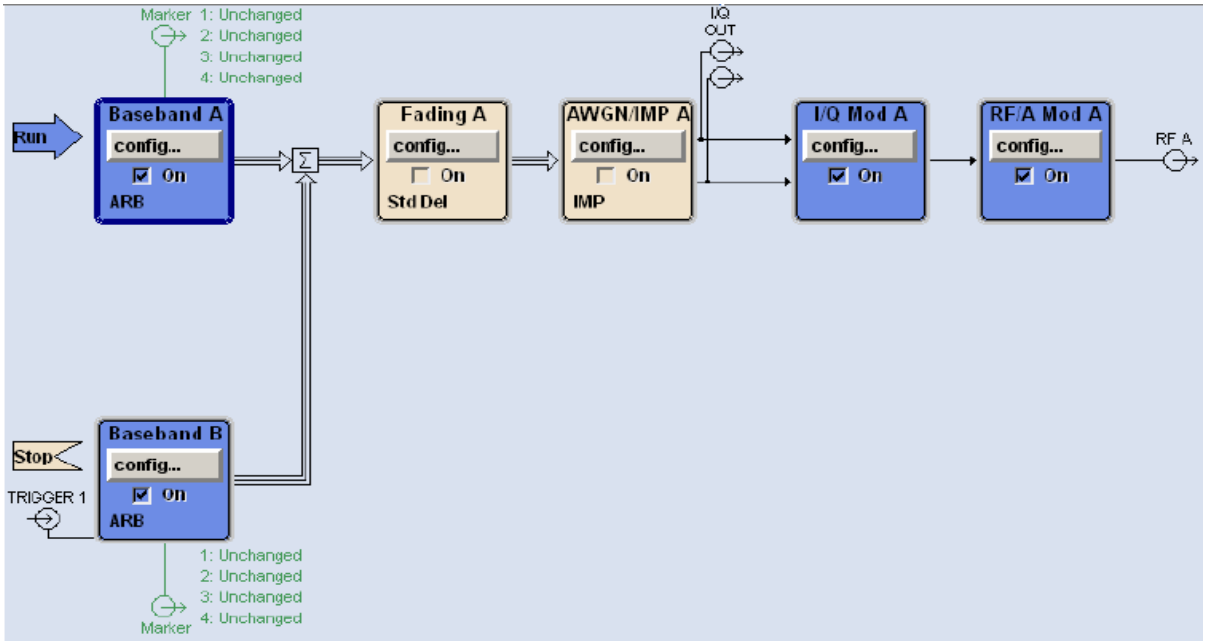
(5) The PRI is randomly selected to be at 1213 microseconds.

(6) Bursts 2 through 8 are generated using steps 3 – 5.

(7) Each Burst is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, Burst 1 is randomly generated (1 to 1,500,000 minus the total Burst 1 length + 1 random PRI interval) at the 325,001 microsecond step. Bursts 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. Burst 2 falls in the 1,500,001 – 3,000,000 microsecond range).



Radar Types (5) System Diagram



Used R&S SMU200A (Vector SG with two ARB)

Path A / Path B Two B11: Base-band Generator with ARB (16 M samples) and Digital Modulation

B13: Base-band Main Module

B106: frequency range (100 kHz to 6 GHz)

For selecting the waveform parameters from within the bounds of the signal type, system was random selection using uniform distribution.

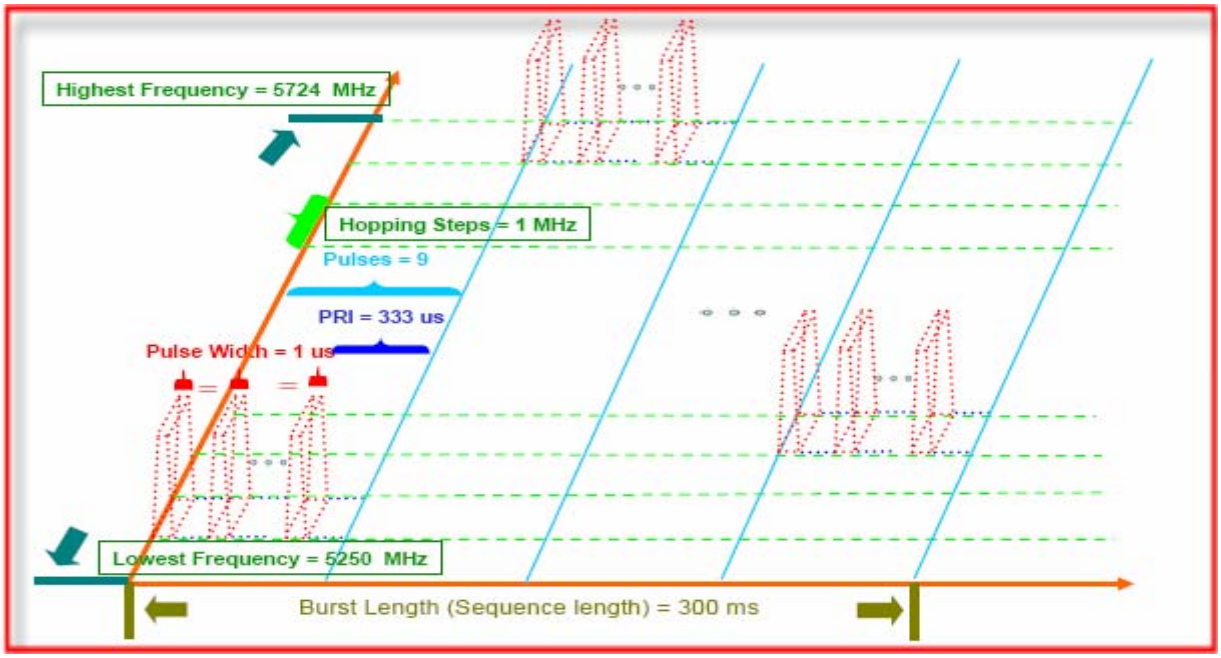
4.1.6 Frequency Hopping Radar Test Waveform (Type 6)

Table 7: Frequency Hopping Radar Test Waveform

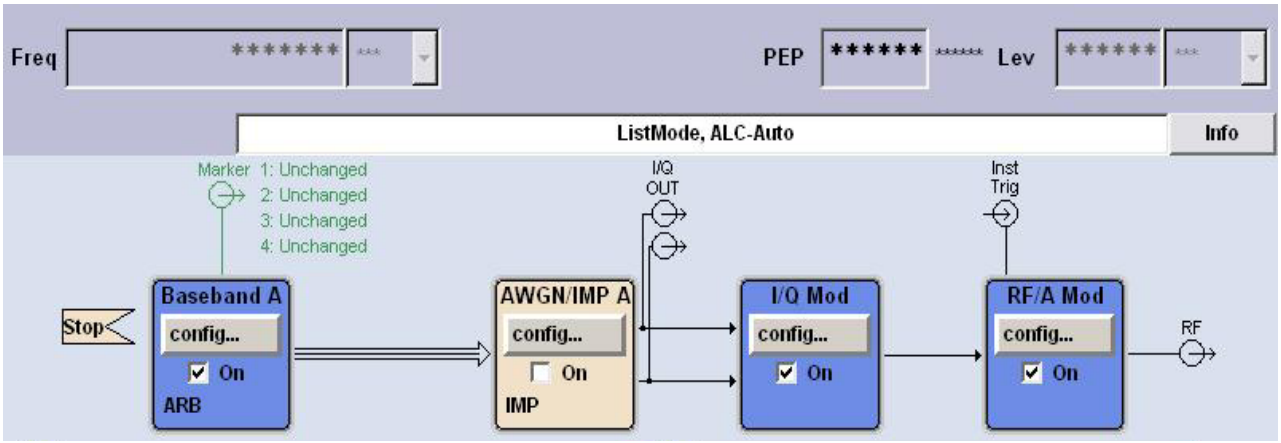
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.



Radar Types (6) System Diagram



Used R&S SMU200A (Vector SG with one ARB)
B11: Base-band Generator with ARB (16 M samples) and Digital Modulation
B13: Base-band Main Module
B106: frequency range (100 kHz to 6 GHz)
For selecting the waveform parameters from within the bounds of the signal type, system were random selection using uniform distribution.

4.1.7 Measuring Instruments

Refer to a list of measuring equipment in section 5.

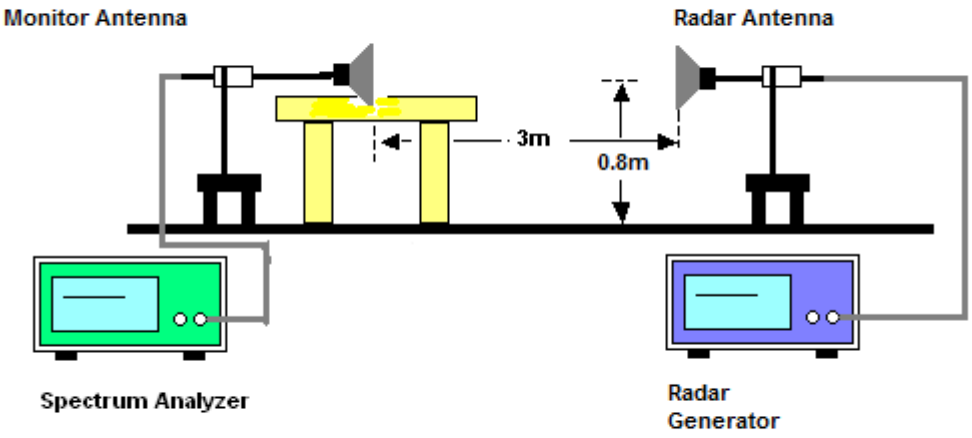
4.1.8 Measuring Instruments and Setting

The following table is the setting of the spectrum analyzer.

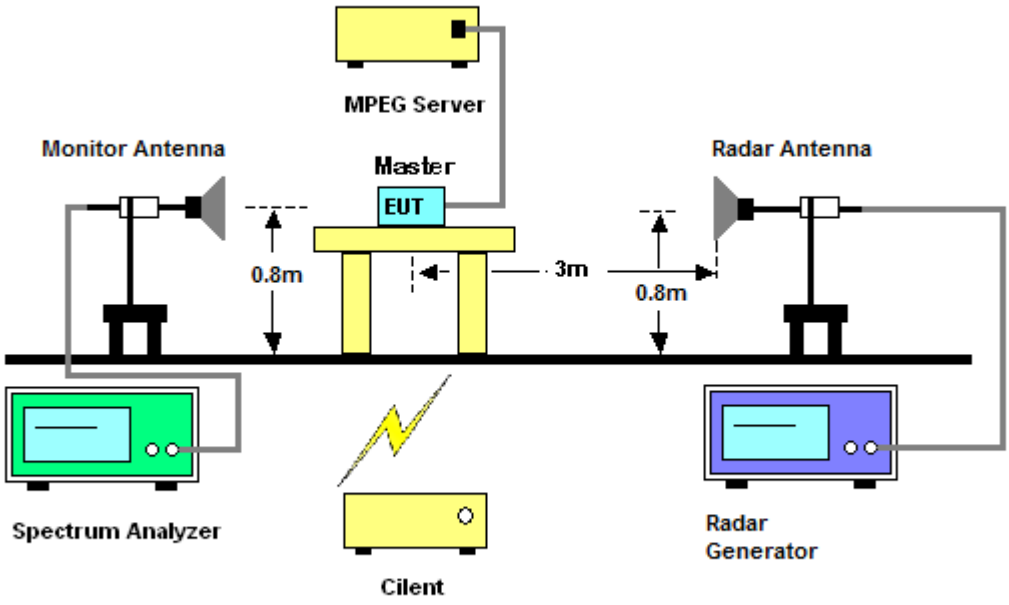
Spectrum Parameter	Setting
Attenuation	0 dB
Span Frequency	0 MHz
RBW / VBW	3 MHz
Sweep Time	More than DFS requirement values

4.1.9 DFS Radiated Test Setup Layout

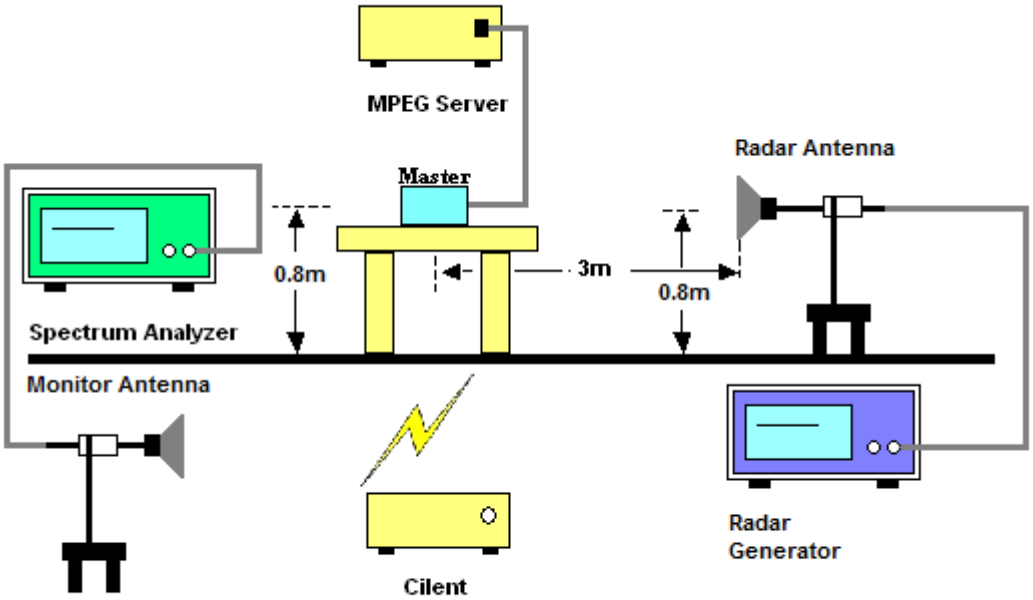
(1) Calibration Setup



(2) **DFS Radiated Test Setup for master mode**



(3) **DFS Radiated Test Setup for Slave without radar detection mode**



4.1.10 Radar Waveform Calibration Procedure

The Interference **Radar Detection Threshold Level** is (-63dBm), The above equipment setup was used to calibrate the radiated Radar Waveform. A vector signal generator was utilized to establish the test signal level for each radar type. During this process there were replace 50ohm terminal form Master and Client device and no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) at the frequency of the Radar Waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to at least 3 MHz. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was (-63dBm). Capture the spectrum analyzer plots on short pulse radar types, long pulse radar type and hopping radar waveform.

4.1.11 Calibration Deviation

There is no deviation with the original standard.

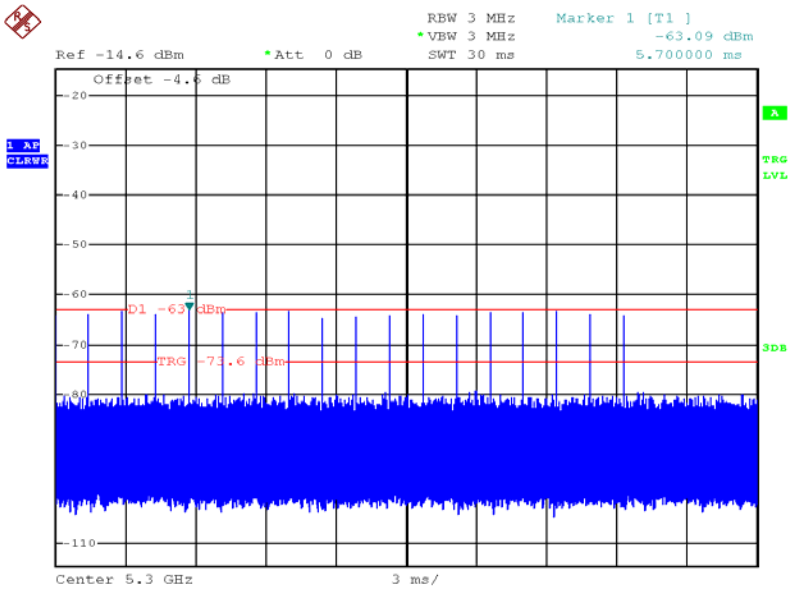
4.1.12 Radar Waveform Calibration Result

Set configuration as section 4.1.9 (1) and do DFS calibration, and then adjust attenuator to make sure that the threshold value is (-63dBm) at the UUT's antenna port.

<Operating Mode: Master>

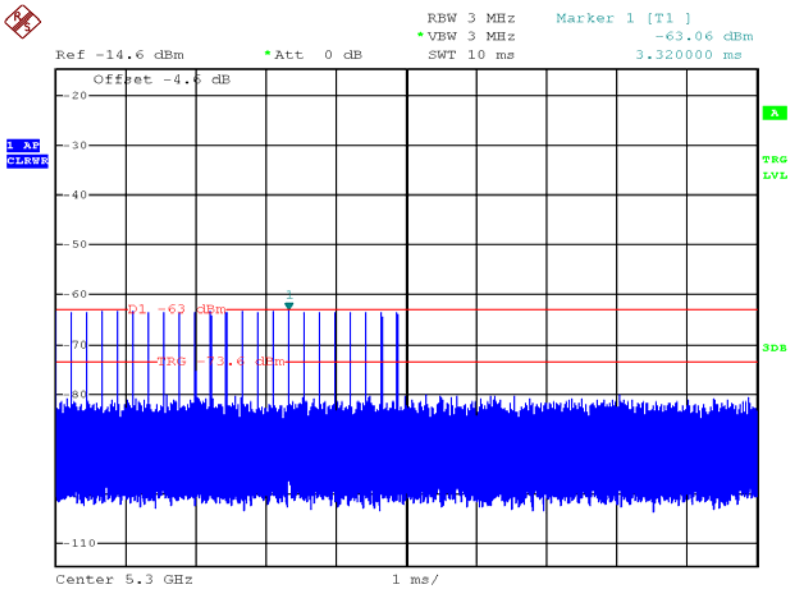
For 802.11a / 5300 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 6.NOV.2013 23:16:16

Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



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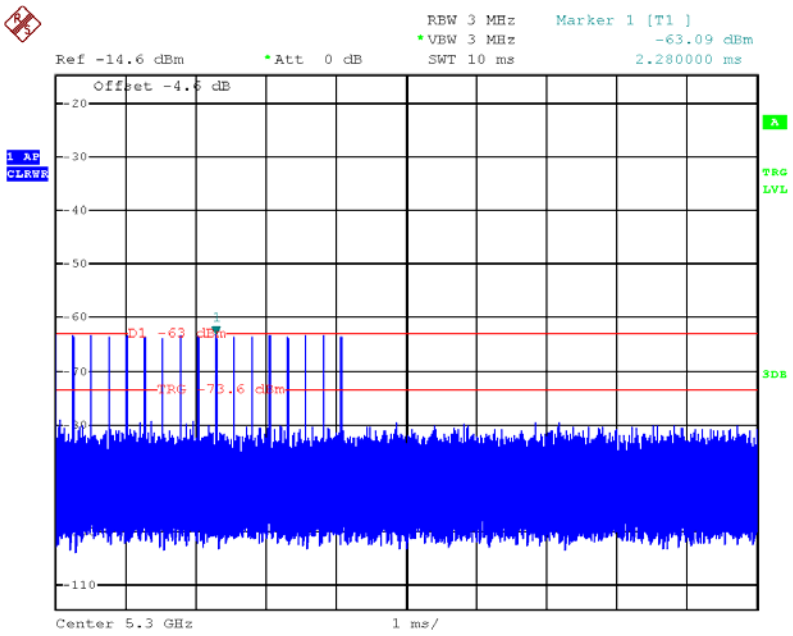
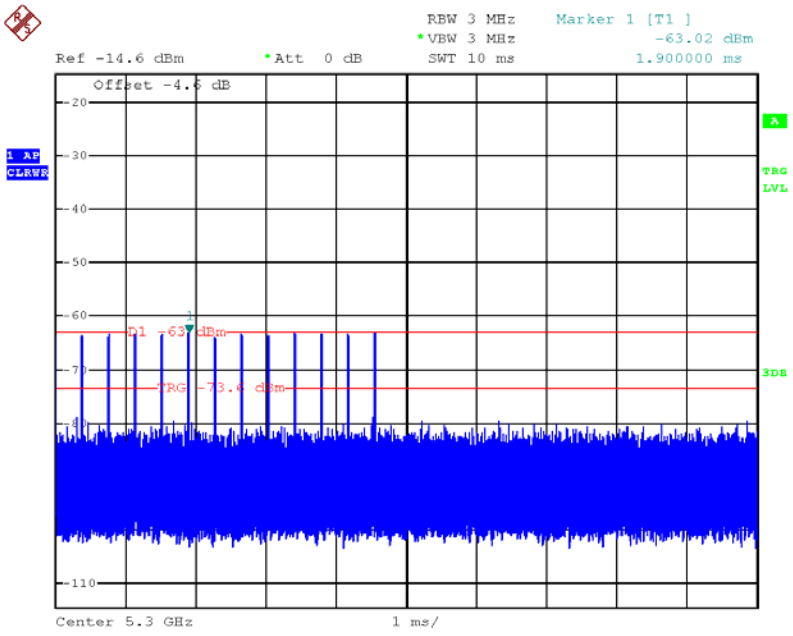
Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



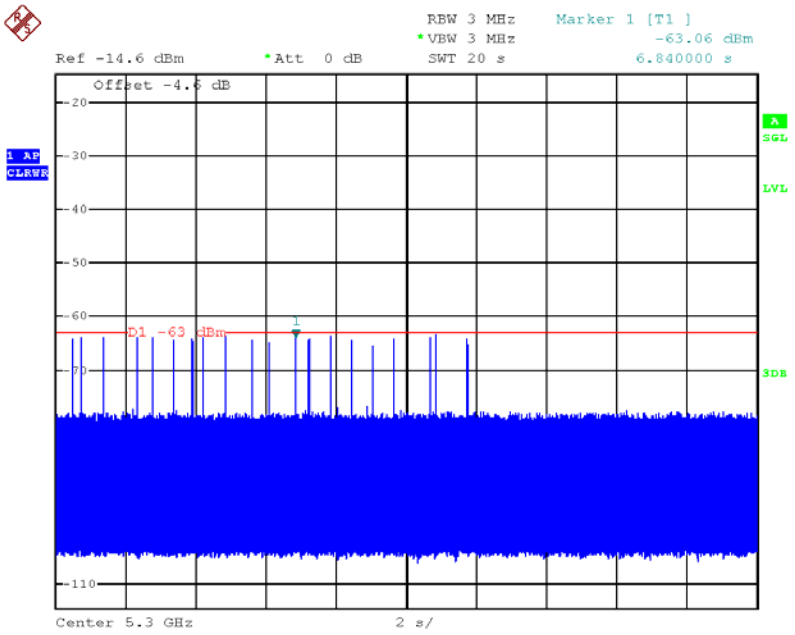
Date: 6.NOV.2013 23:19:27

Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



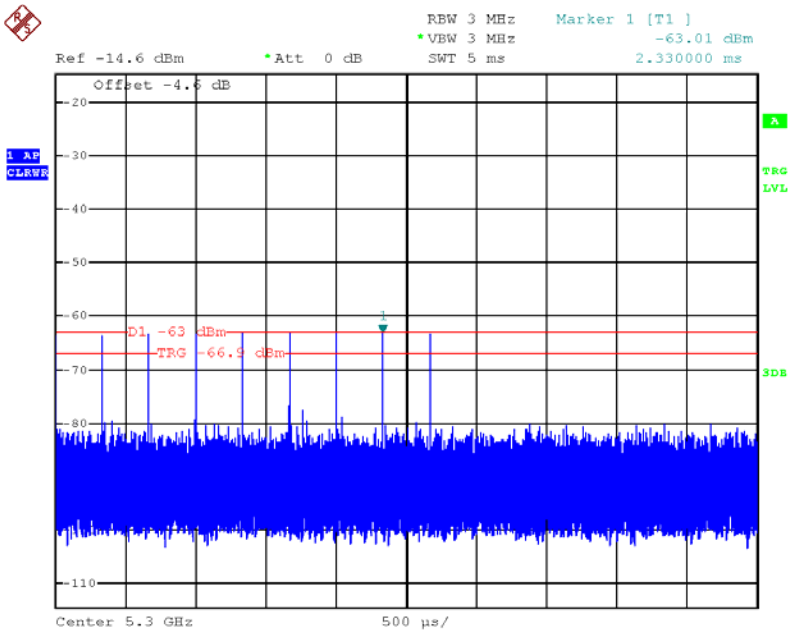
Date: 6.NOV.2013 23:20:05

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 6.NOV.2013 23:26:55

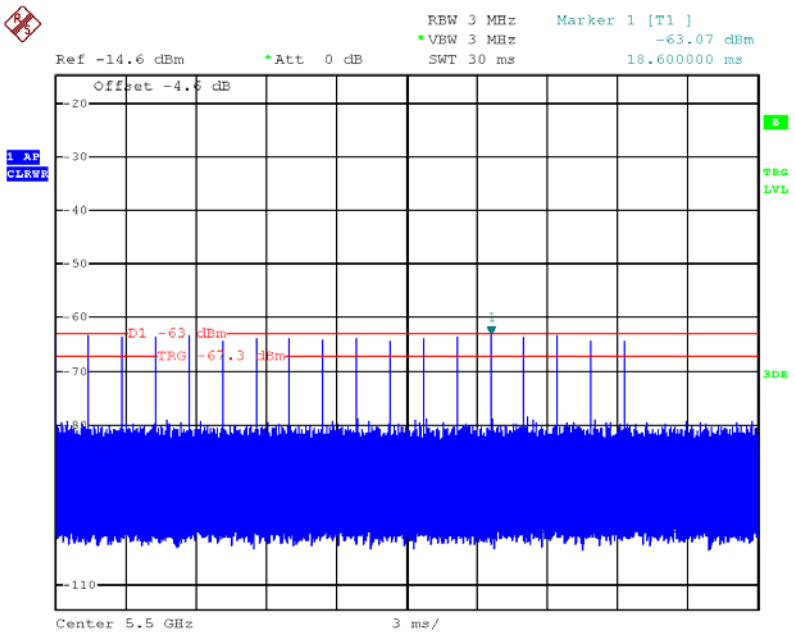
Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.



Date: 6.NOV.2013 23:36:13

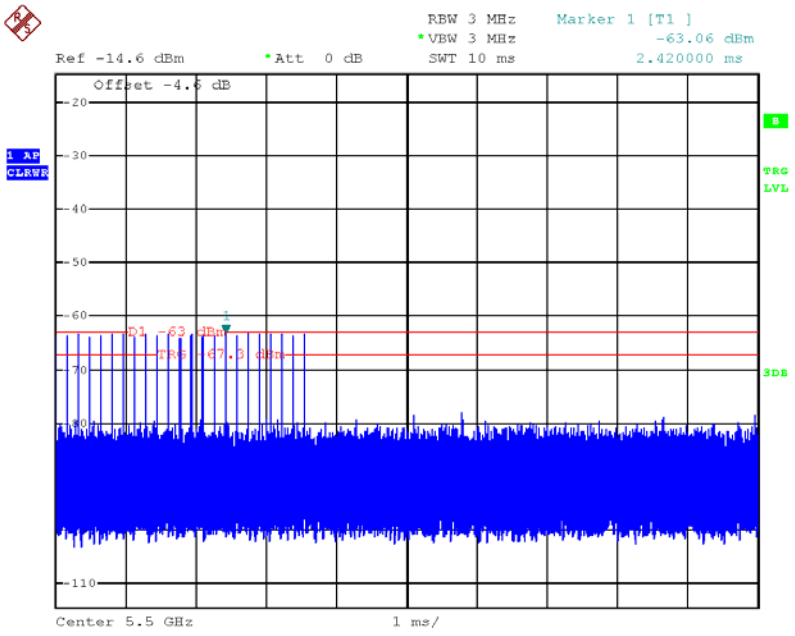
For 802.11a / 5500 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 6.NOV.2013 12:30:53

Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



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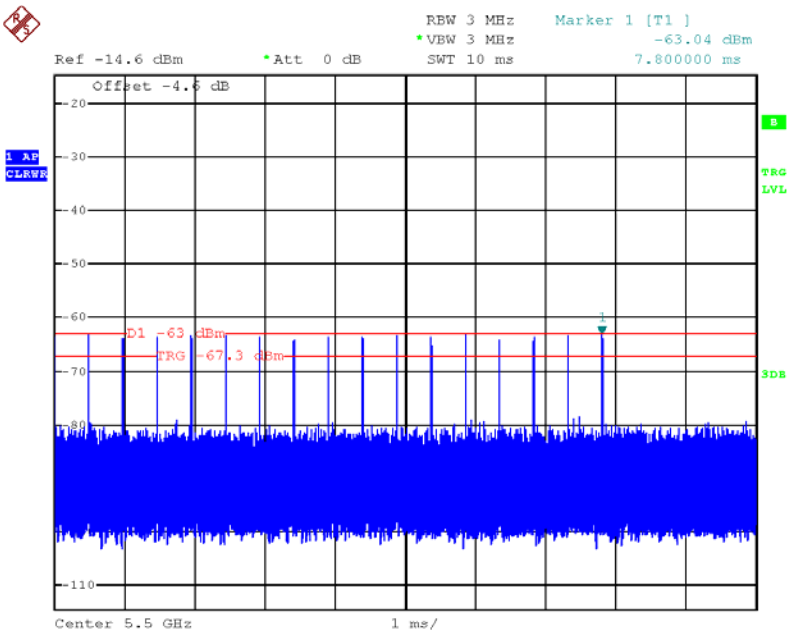
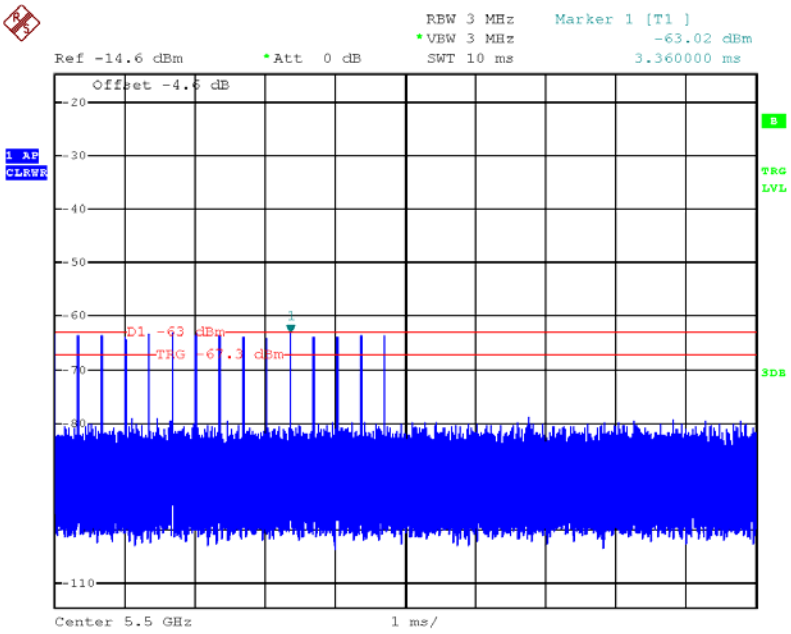
Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



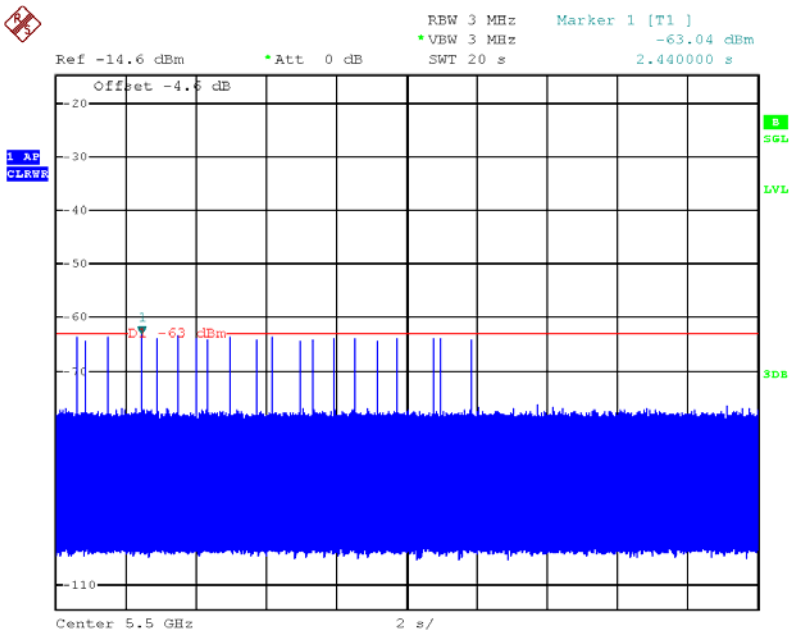
Date: 6.NOV.2013 12:34:15

Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



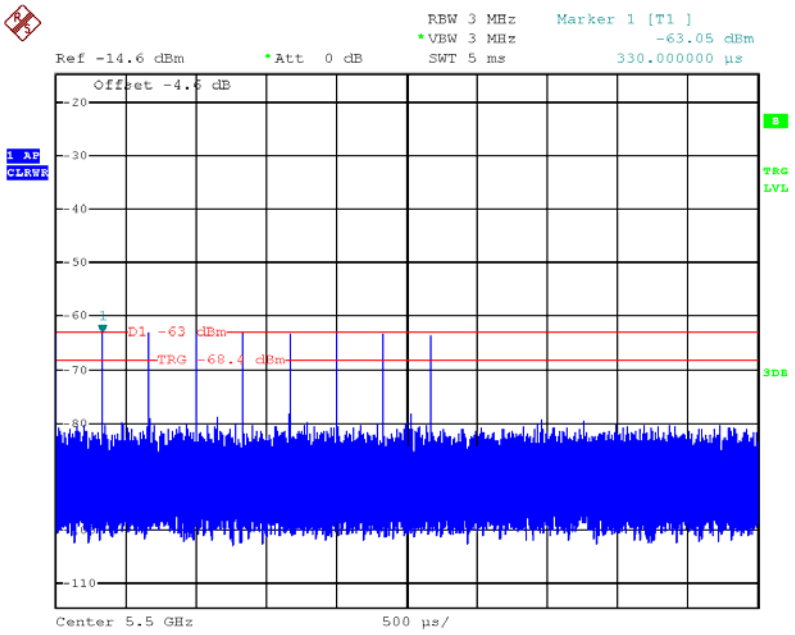
Date: 6.NOV.2013 12:36:14

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 6.NOV.2013 12:29:00

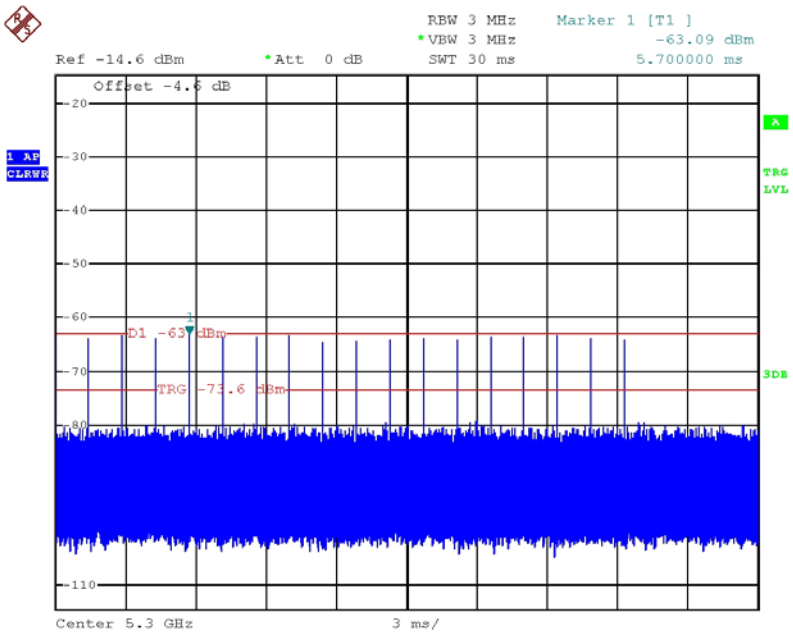
Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.



Date: 6.NOV.2013 12:21:55

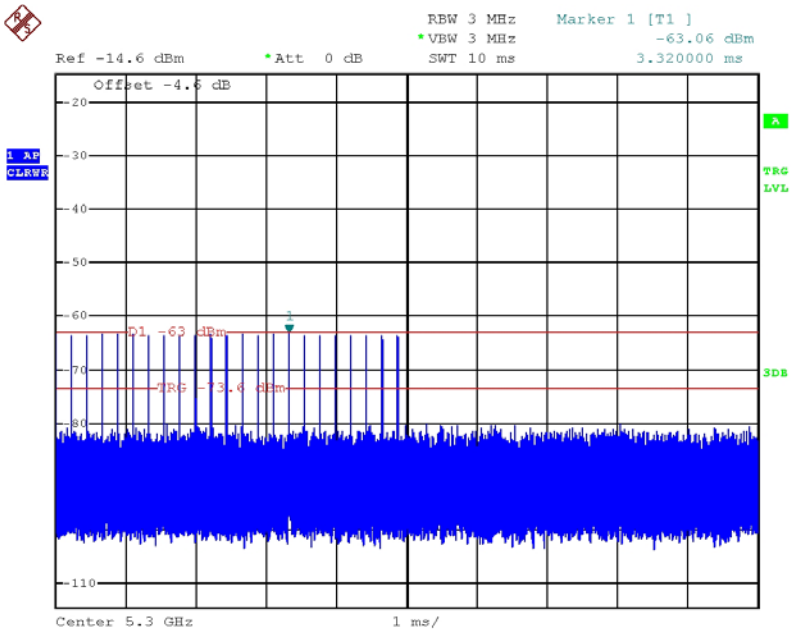
For 802.11n 20MHz / 5300 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 4.NOV.2013 23:16:16

Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



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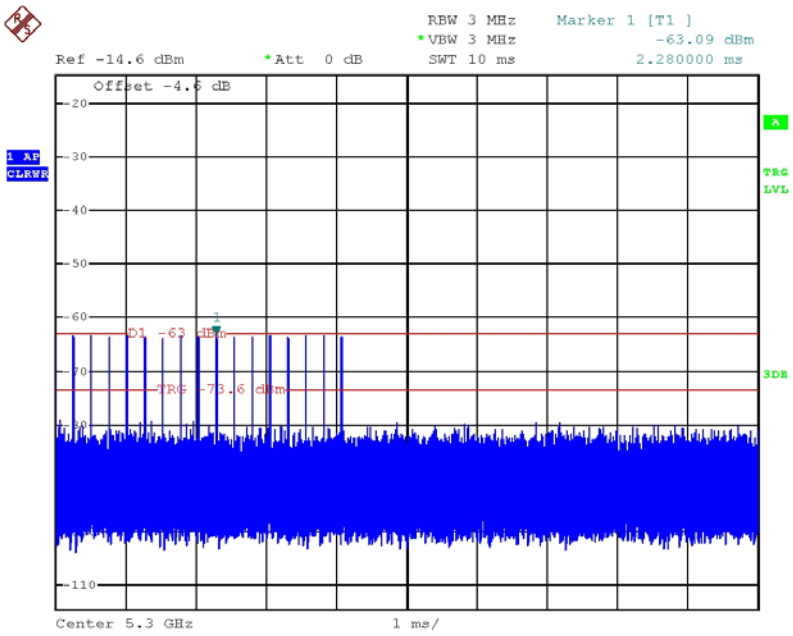
Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



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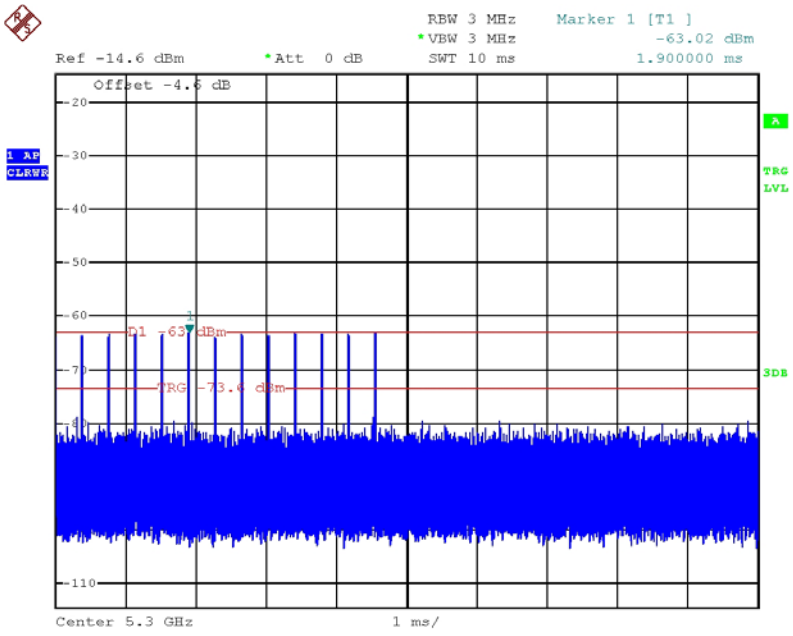
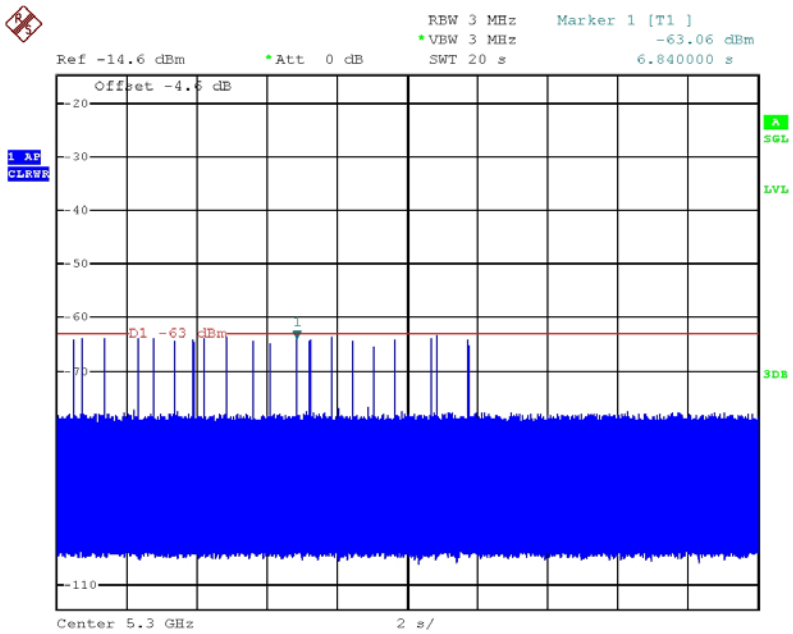
Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



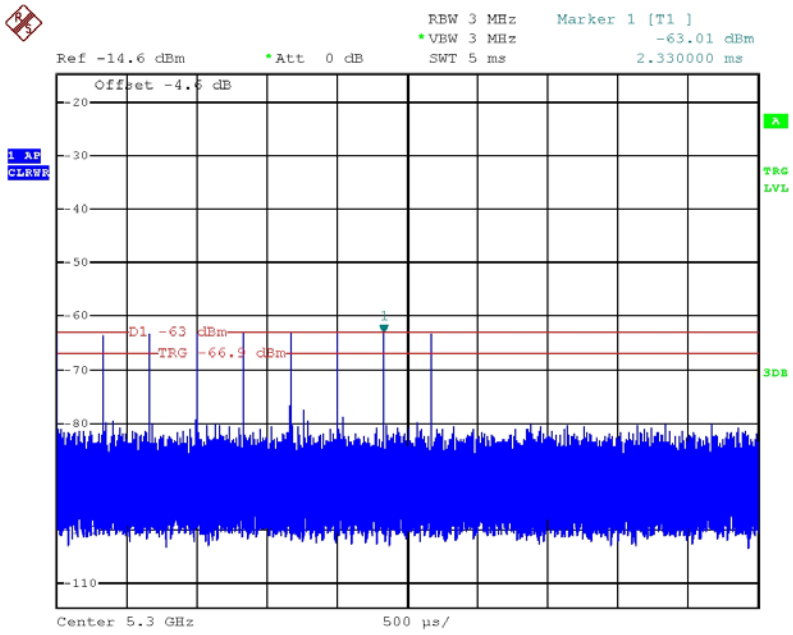
Date: 4.NOV.2013 23:20:05

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 4.NOV.2013 23:26:55

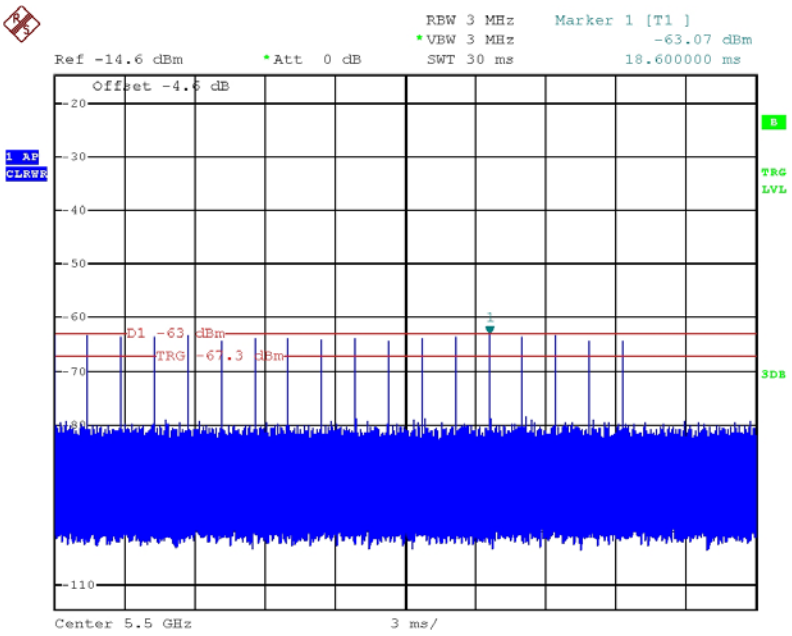
Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.



Date: 4.NOV.2013 23:36:13

For 802.11n 20MHz / 5500 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



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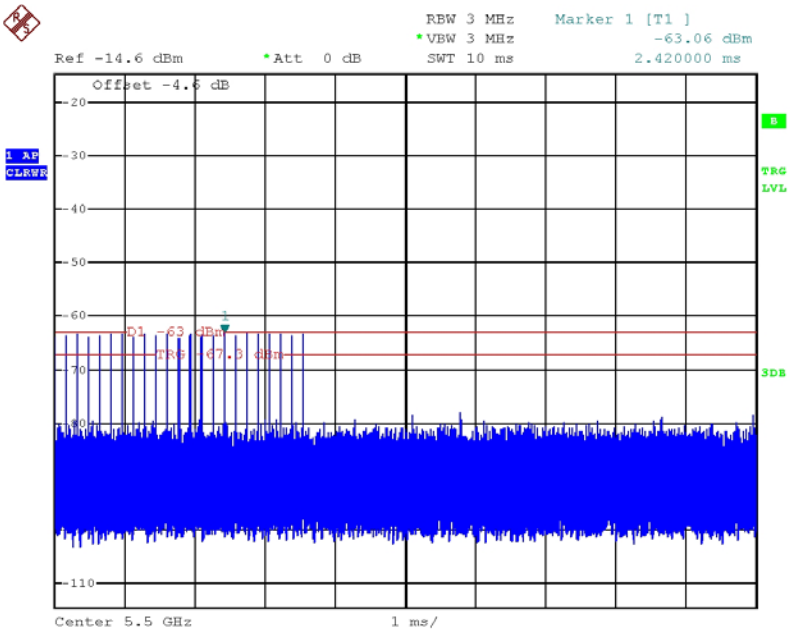
Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



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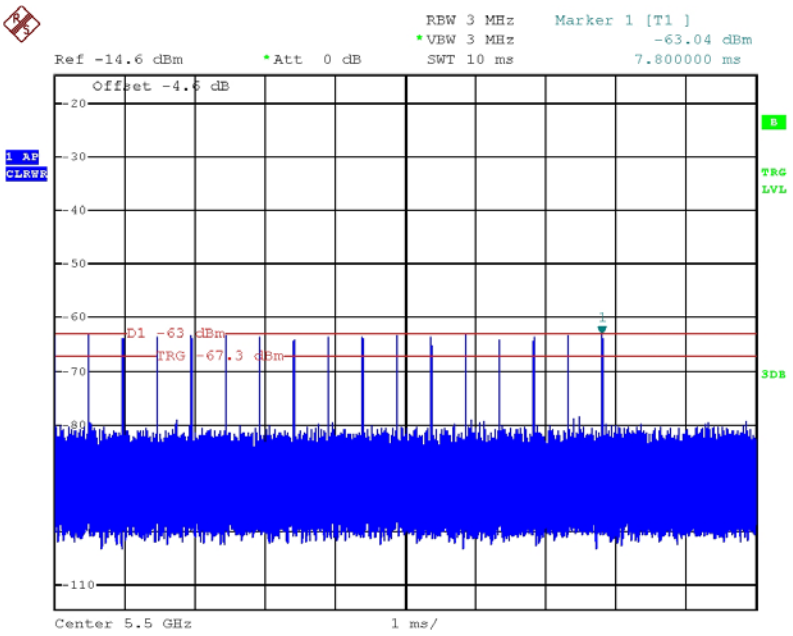
Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



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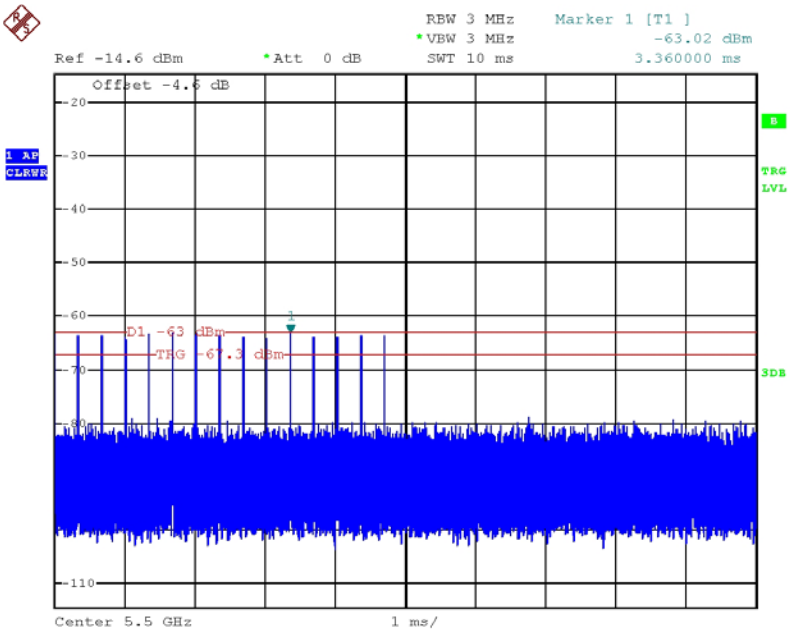
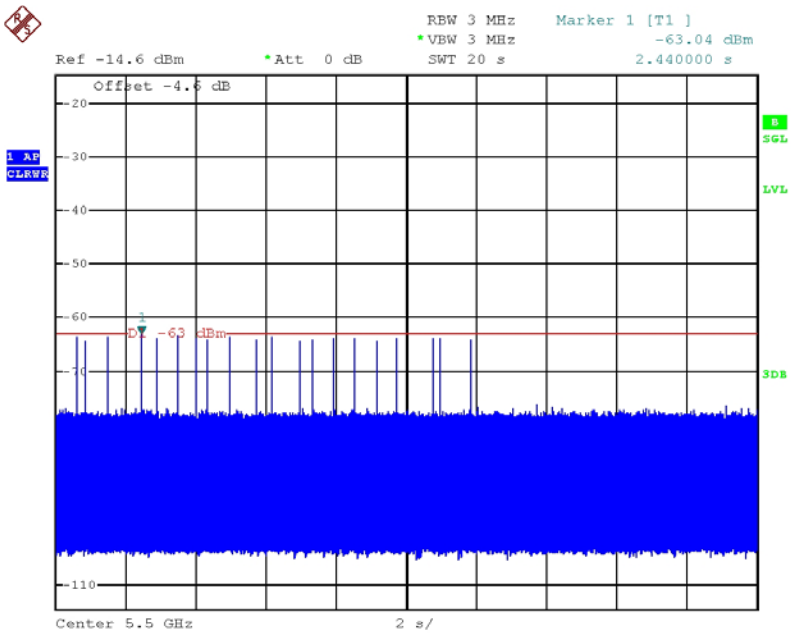
Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



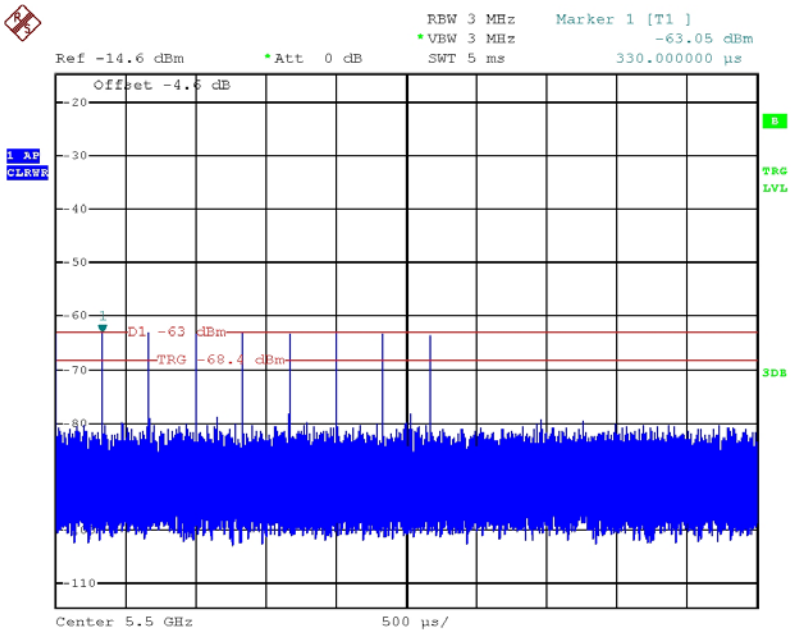
Date: 4.NOV.2013 12:36:14

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 4.NOV.2013 12:29:00

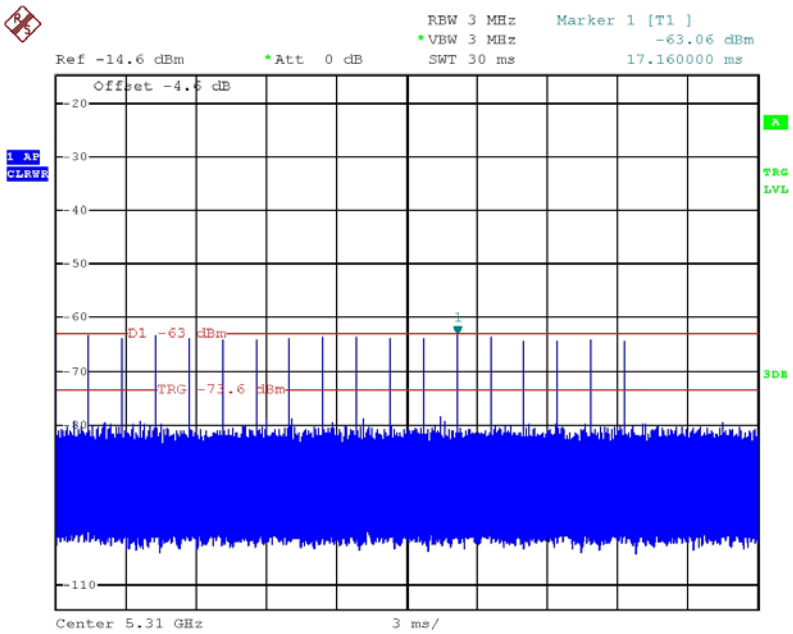
Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.



Date: 4.NOV.2013 12:21:55

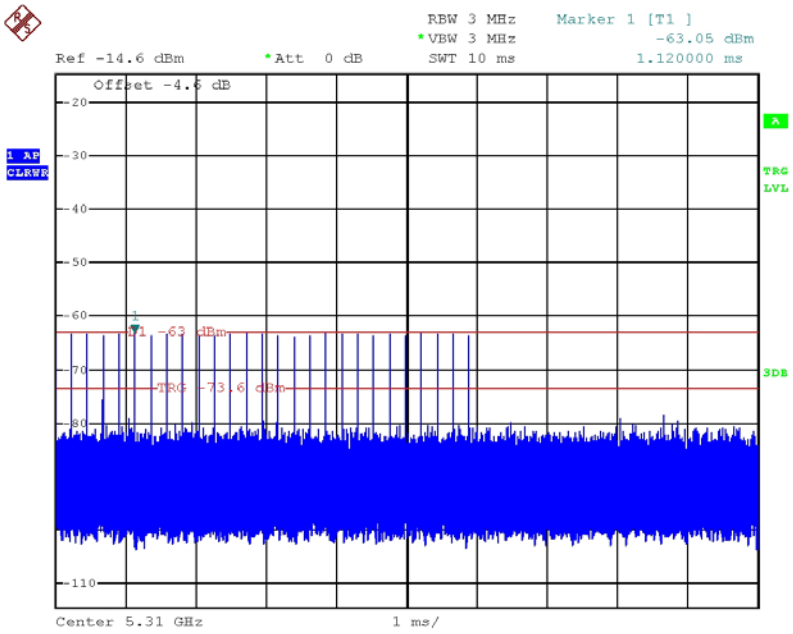
For 802.11n 40MHz / 5310 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



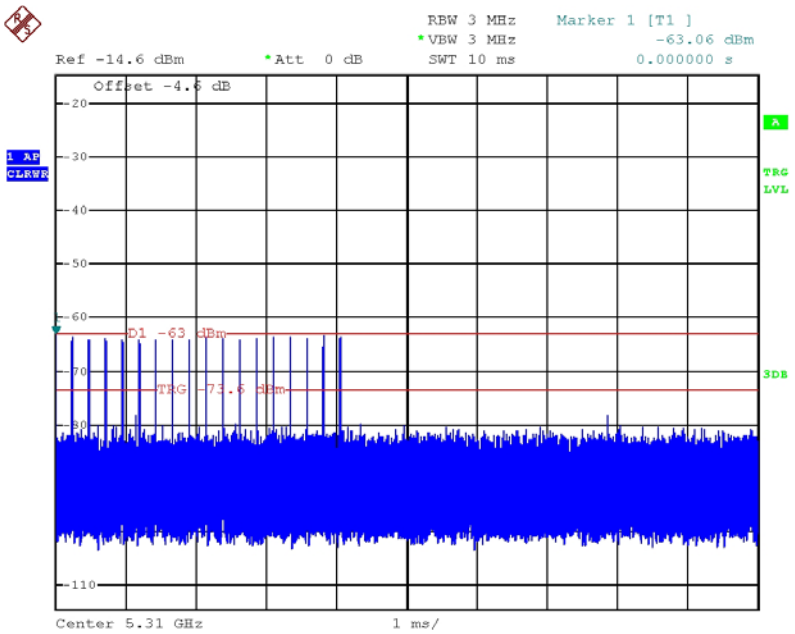
Date: 4.NOV.2013 23:15:51

Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



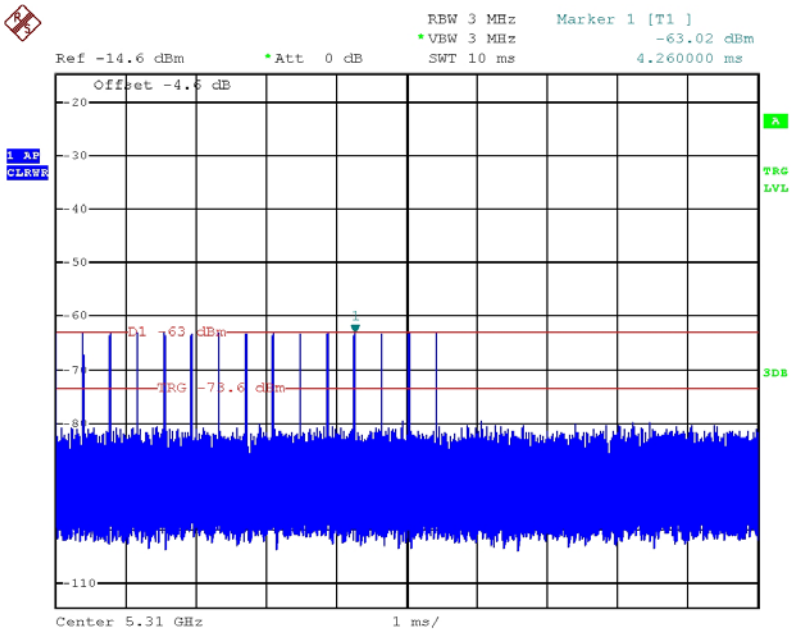
Date: 4.NOV.2013 23:18:05

Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



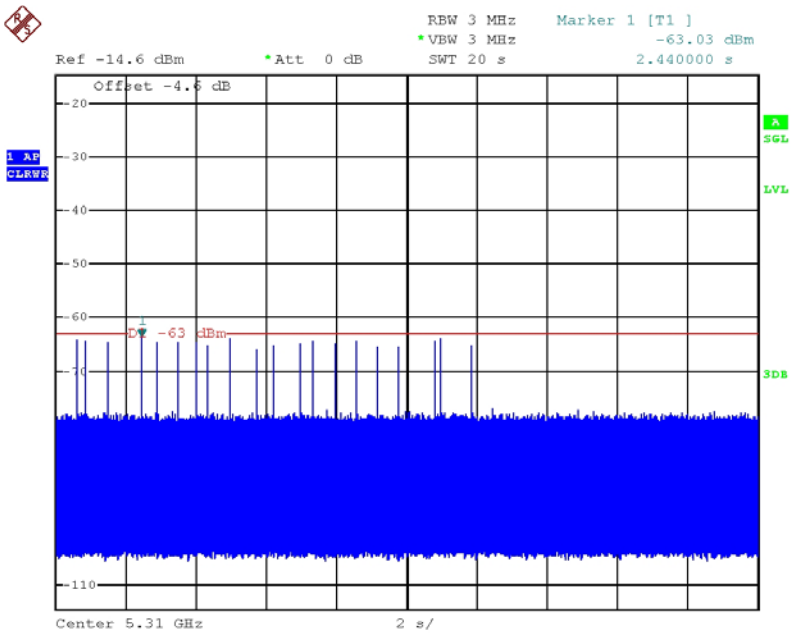
Date: 4.NOV.2013 23:19:04

Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



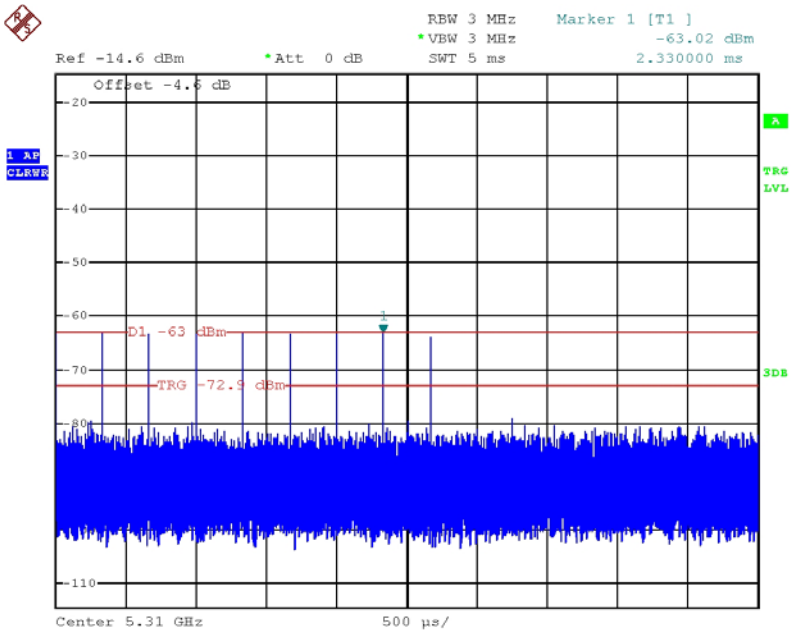
Date: 4.NOV.2013 23:20:34

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 4.NOV.2013 23:24:41

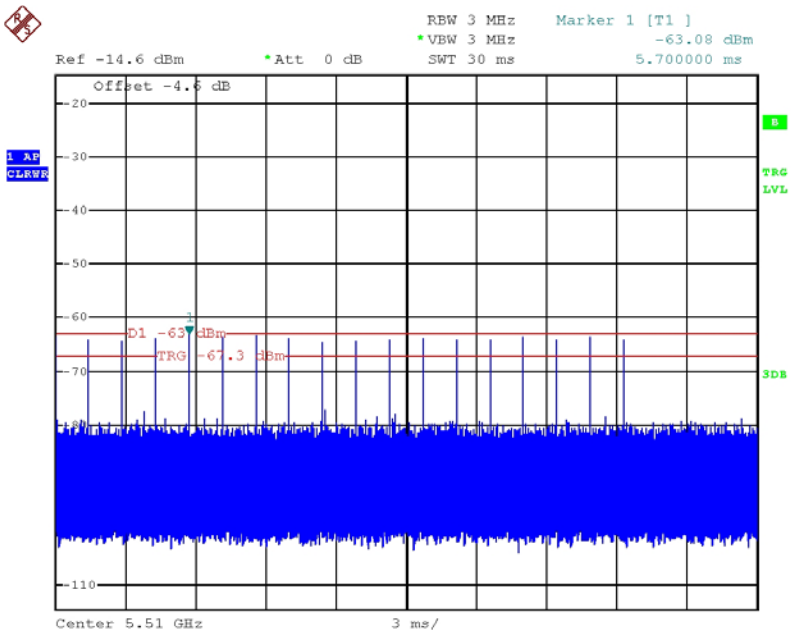
Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.



Date: 4.NOV.2013 23:40:46

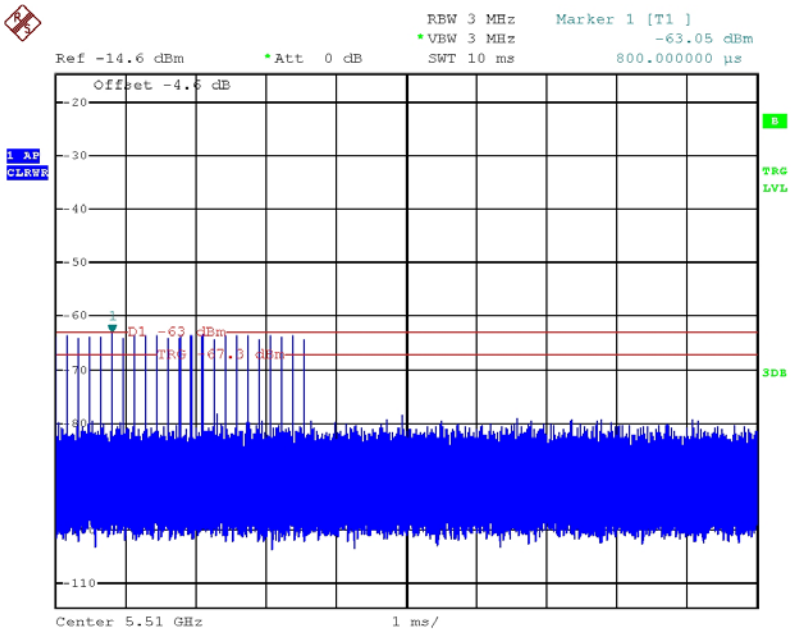
For 802.11n 40MHz / 5510 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



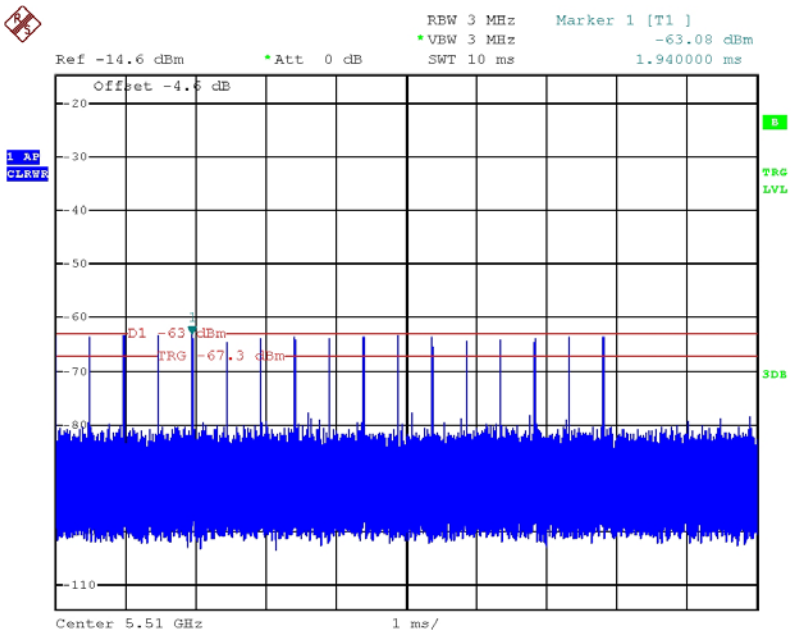
Date: 4.NOV.2013 12:40:38

Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



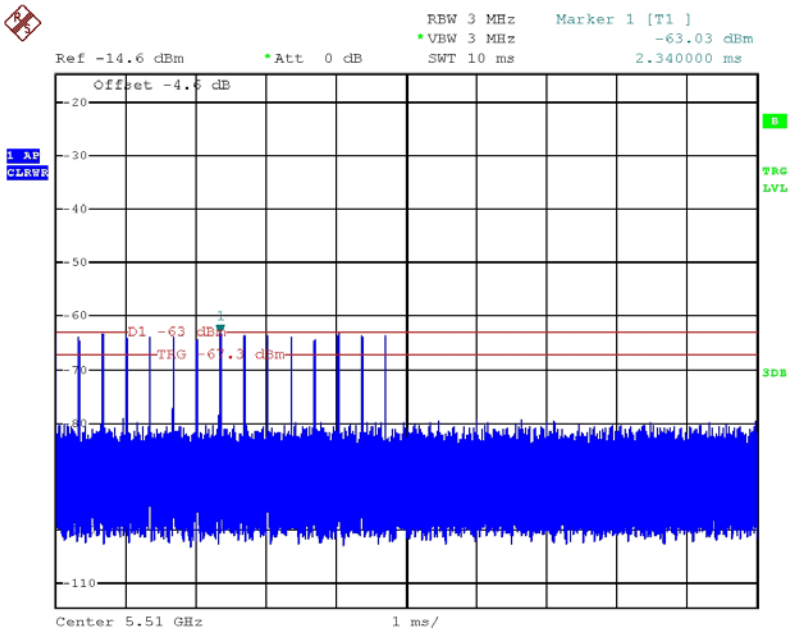
Date: 4.NOV.2013 12:39:53

Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



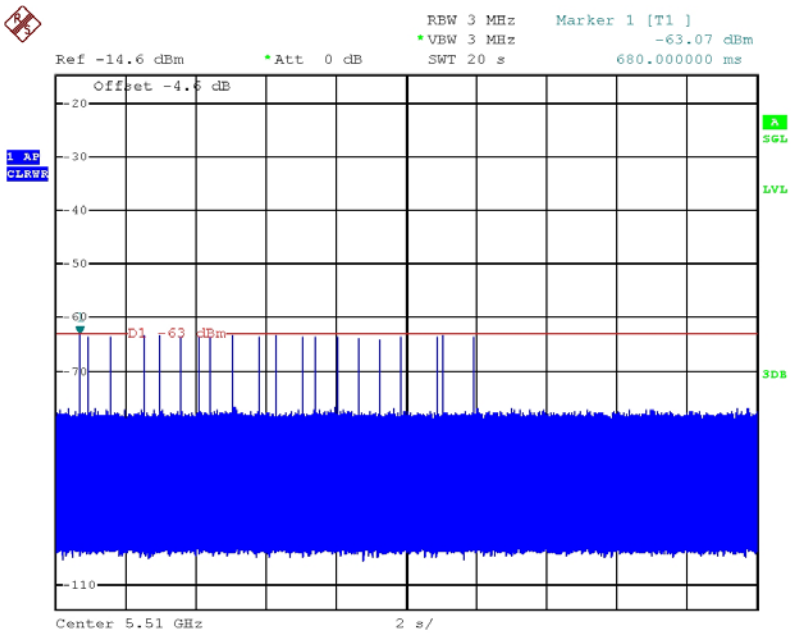
Date: 4.NOV.2013 12:39:03

Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



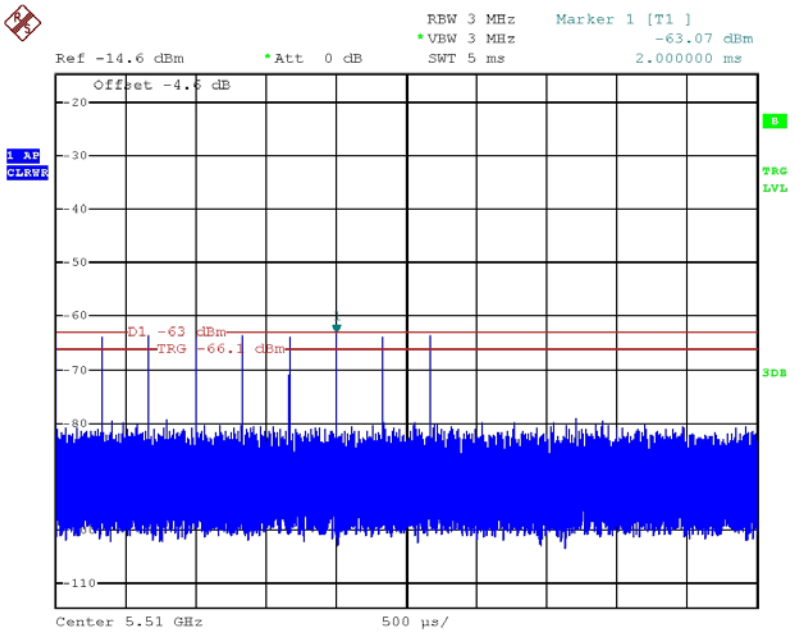
Date: 4.NOV.2013 12:38:12

Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Date: 4.NOV.2013 12:52:36

Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth.

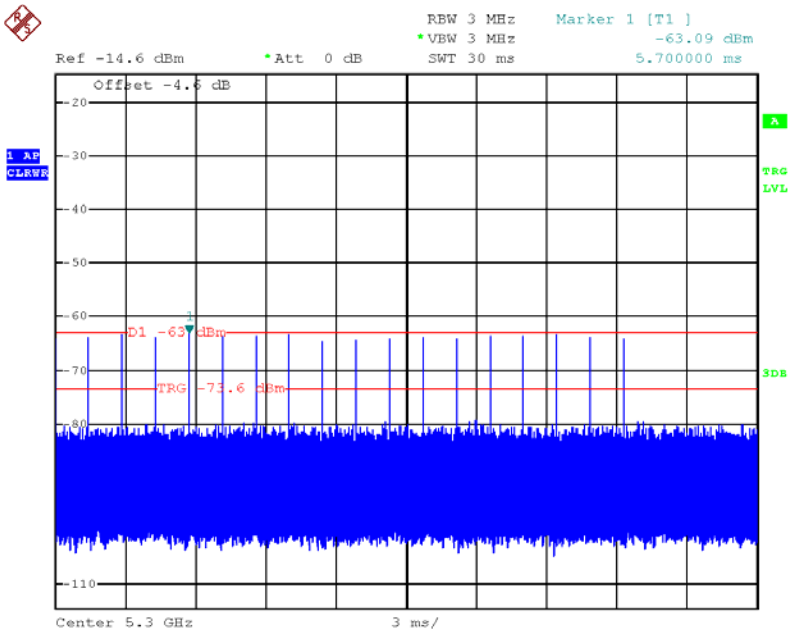


Date: 4.NOV.2013 12:14:49

<Operating Mode: Slave without radar detection>

For 802.11a / 5300 MHz:

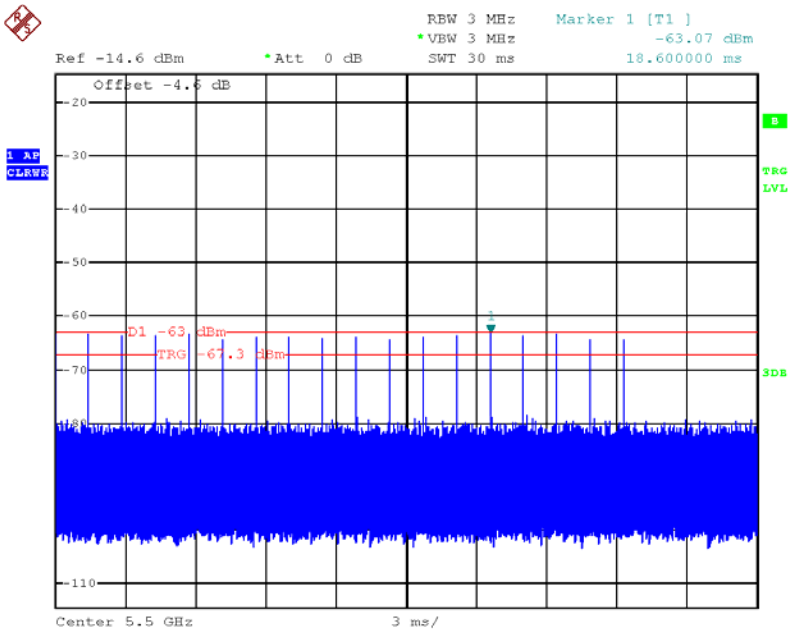
Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 6.NOV.2013 23:16:16

For 802.11a / 5500 MHz:

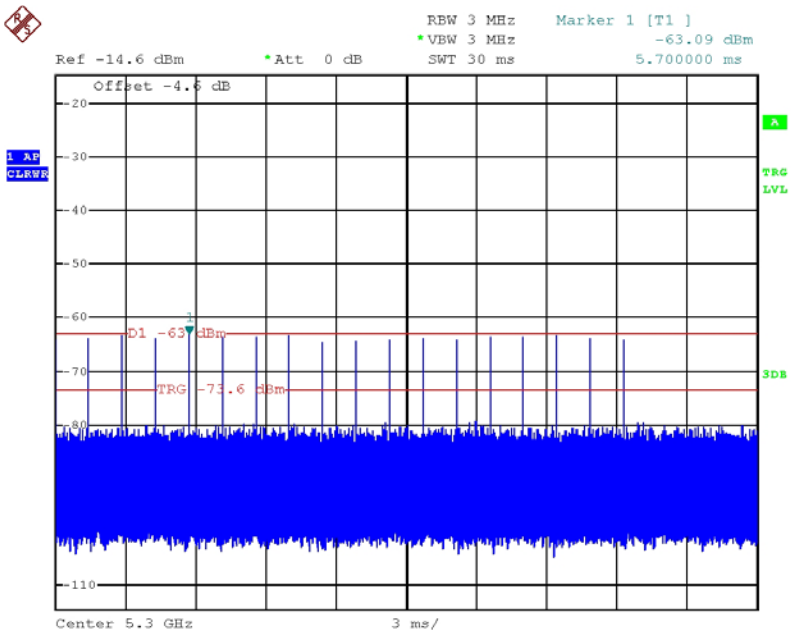
Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 6.NOV.2013 12:30:53

For 802.11n 20MHz / 5300 MHz:

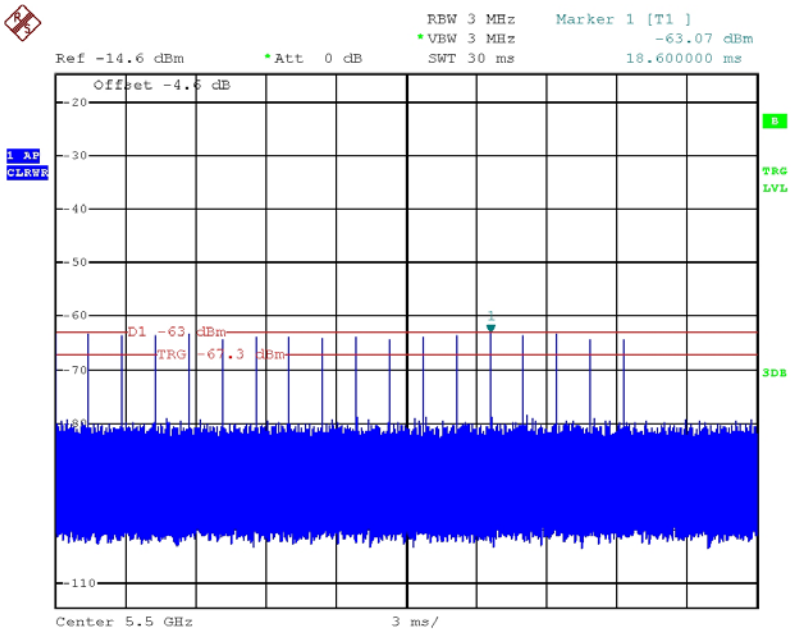
Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 4.NOV.2013 23:16:16

For 802.11n 20MHz / 5500 MHz:

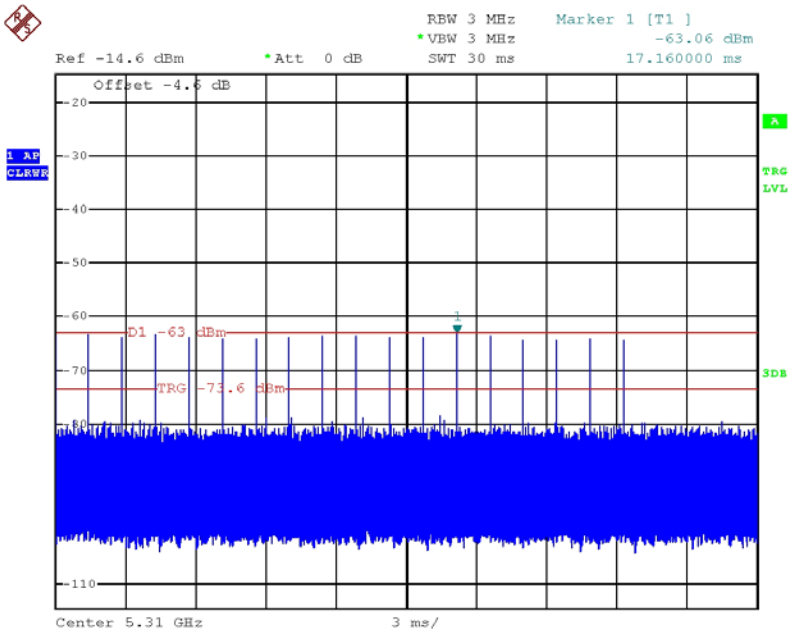
Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 4.NOV.2013 12:30:53

For 802.11n 40MHz / 5310 MHz:

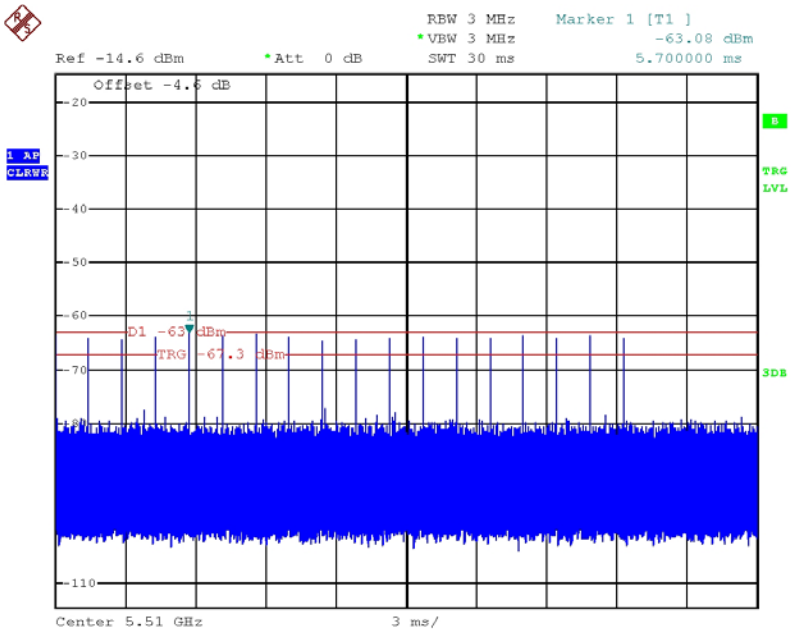
Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency



Date: 4.NOV.2013 23:15:51

For 802.11n 40MHz / 5510 MHz:

Radar #1 DFS detection threshold level and the burst of pulses on the Channel frequency

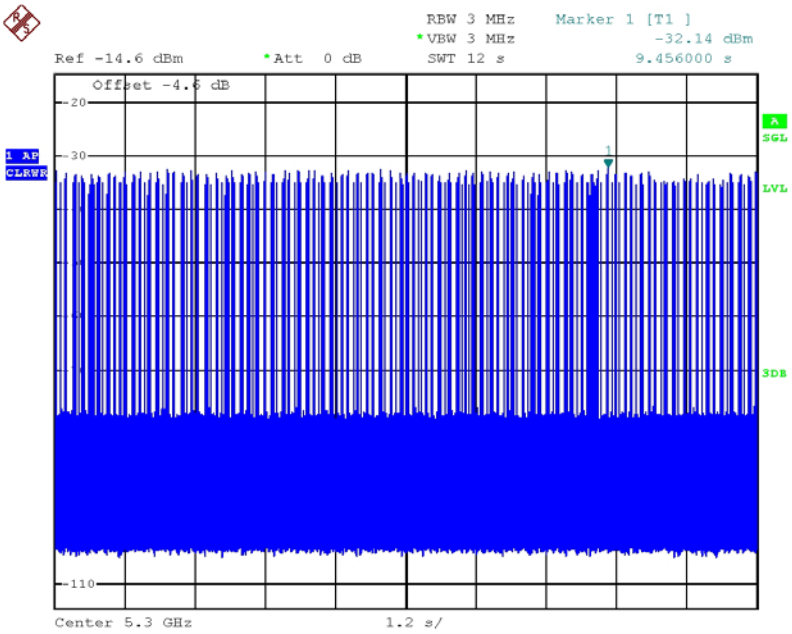


Date: 4.NOV.2013 12:40:38

<Operating Mode: Master>

For 802.11a / 5300 MHz:

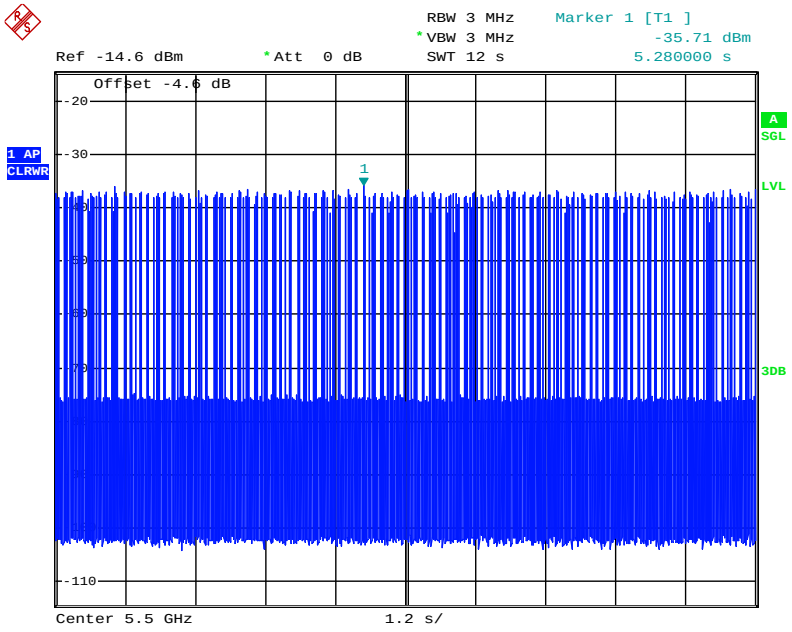
EUT (Master) Data Traffic Plot



Date: 6.NOV.2013 02:04:13

For 802.11a / 5500 MHz:

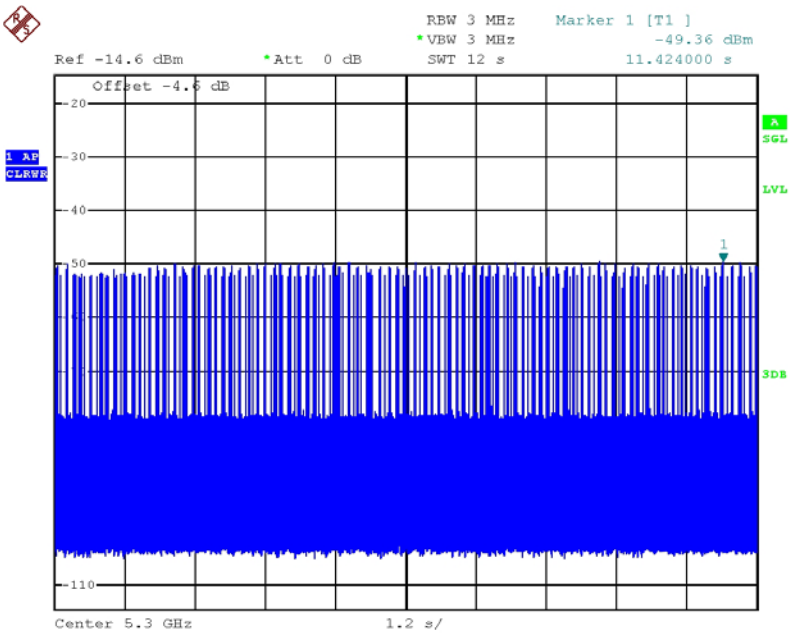
EUT (Master) Data Traffic Plot



Date: 4.NOV.2013 09:40:58

For 802.11a / 5300 MHz:

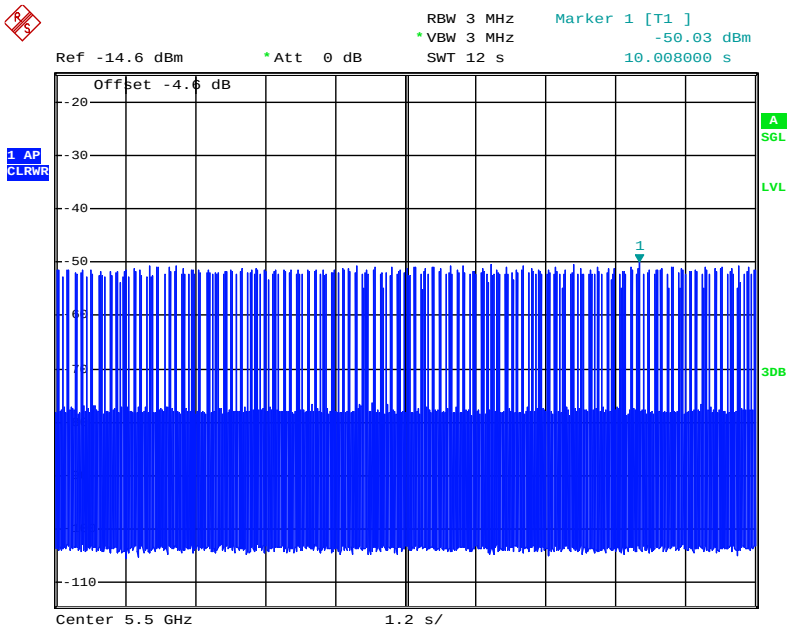
Slave Data Traffic Plot



Date: 6.NOV.2013 02:05:01

For 802.11a / 5500 MHz:

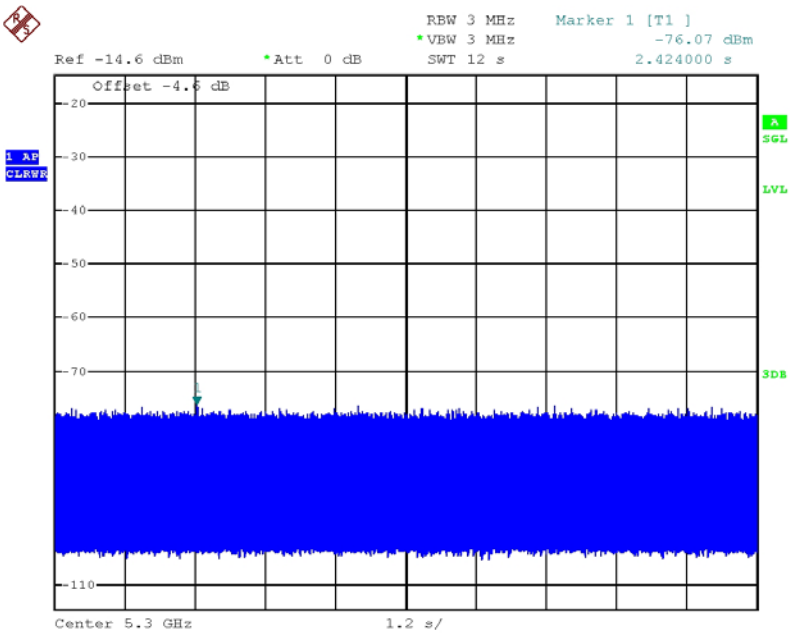
Slave Data Traffic Plot



Date: 4.NOV.2013 09:42:41

For 802.11a / 5300 MHz:

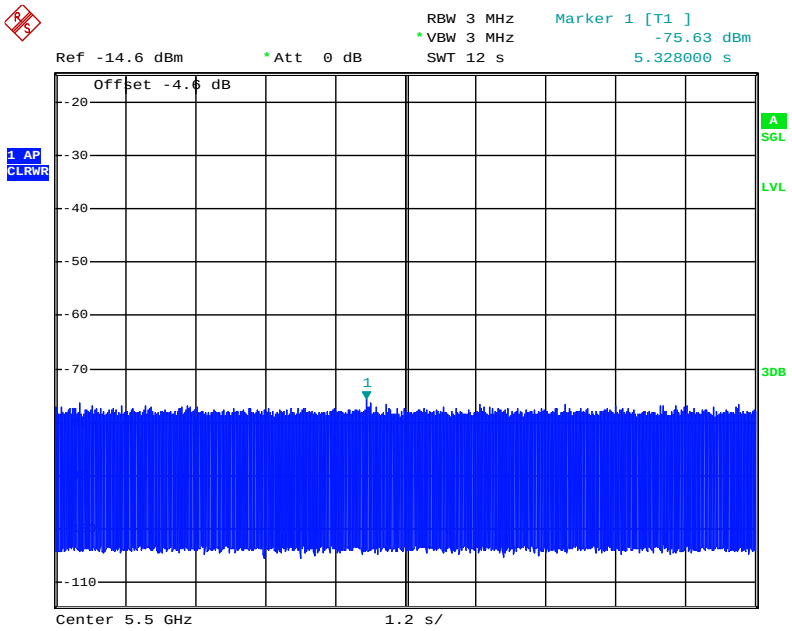
Without Data Traffic Plot (Noise Plot)



Date: 6.NOV.2013 02:05:30

For 802.11a / 5500 MHz:

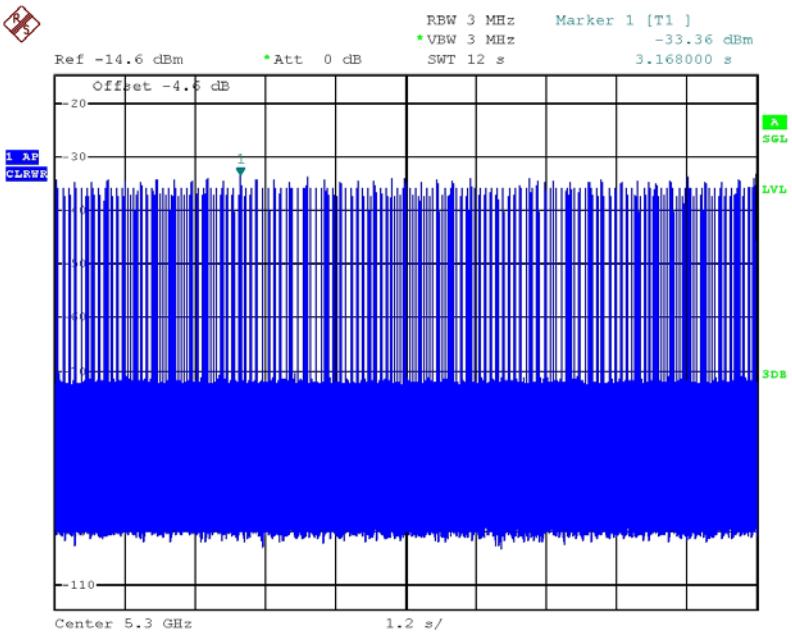
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 09:44:14

For 802.11n 20MHz / 5300 MHz:

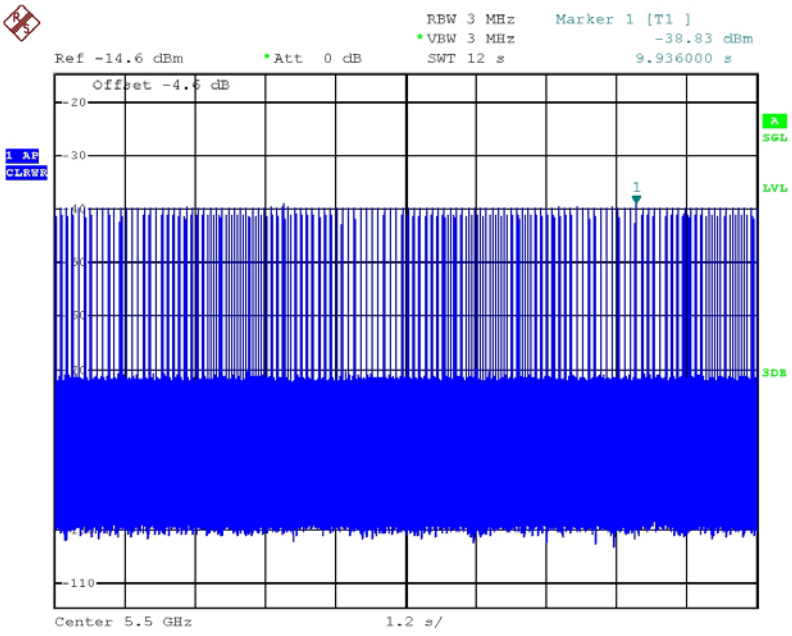
EUT (Master) Data Traffic Plot



Date: 4.NOV.2013 06:10:49

For 802.11n 20MHz / 5500 MHz:

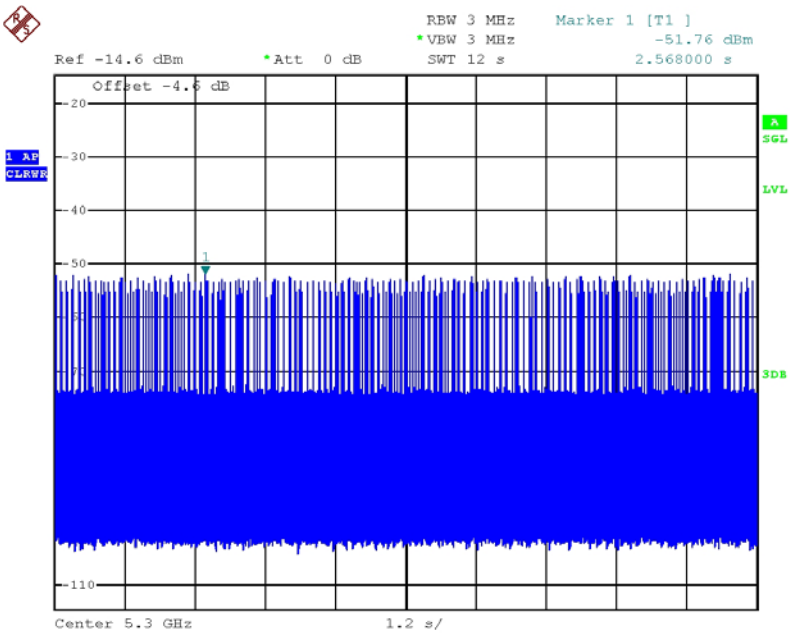
EUT (Master) Data Traffic Plot



Date: 4.NOV.2013 06:56:32

For 802.11n 20MHz / 5300 MHz:

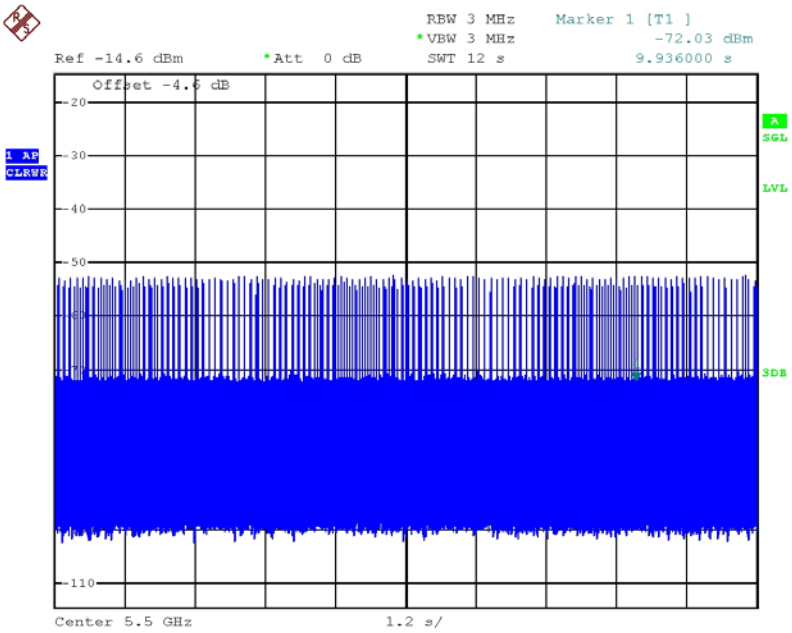
Slave Data Traffic Plot



Date: 4.NOV.2013 06:14:44

For 802.11n 20MHz / 5500 MHz:

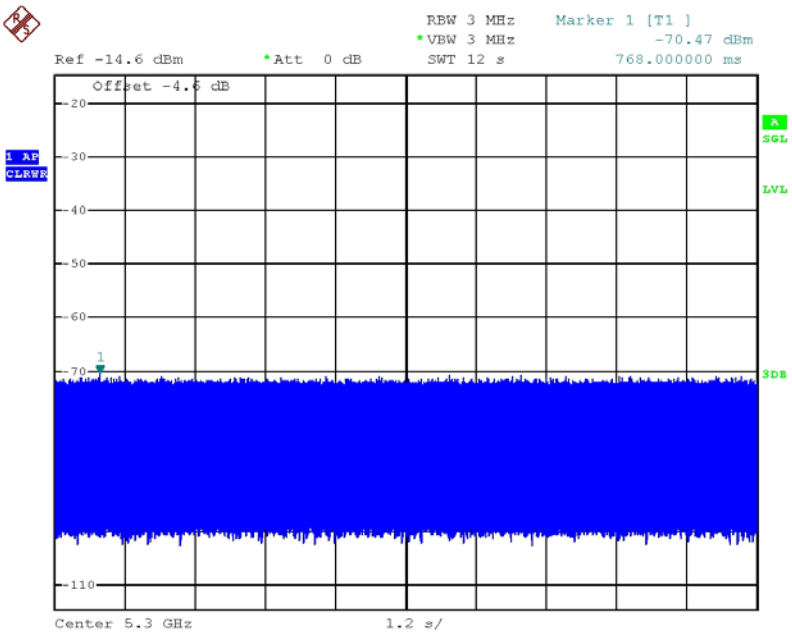
Slave Data Traffic Plot



Date: 4.NOV.2013 06:57:24

For 802.11n 20MHz / 5300 MHz:

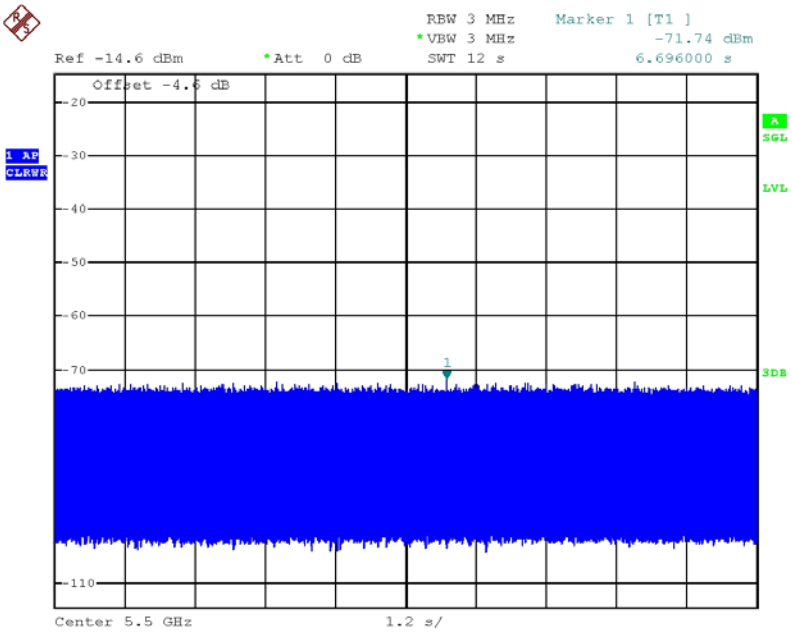
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 06:09:34

For 802.11n 20MHz / 5500 MHz:

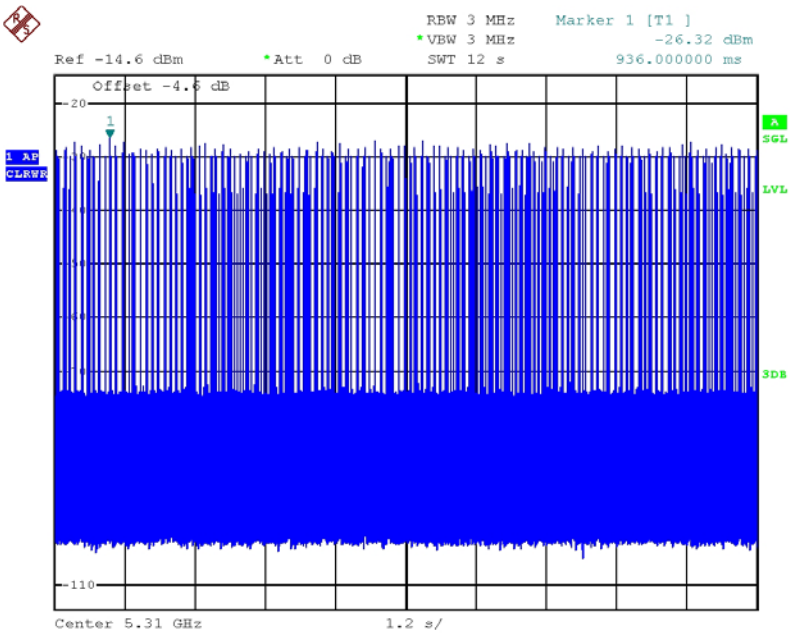
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 06:54:06

For 802.11n 40MHz / 5310 MHz:

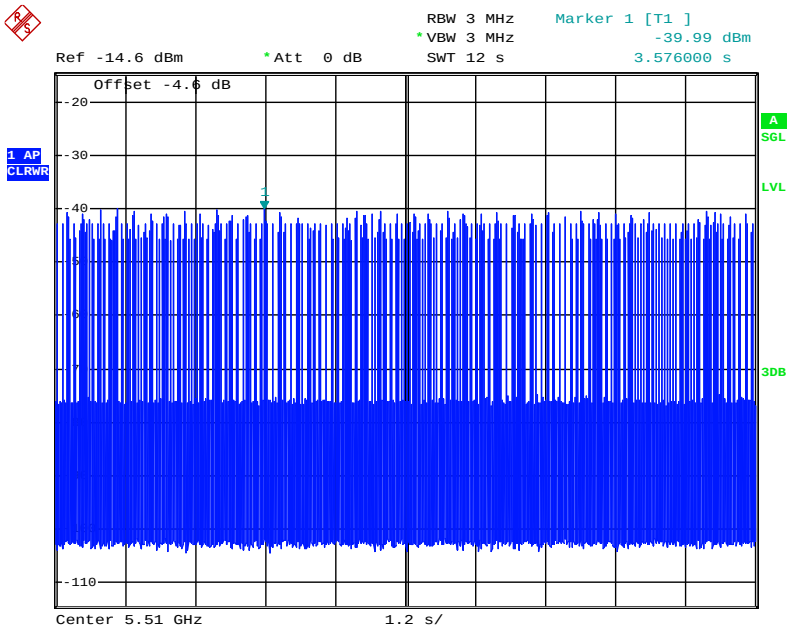
EUT (Master) Data Traffic Plot



Date: 4.NOV.2013 03:24:12

For 802.11n 40MHz / 5510 MHz:

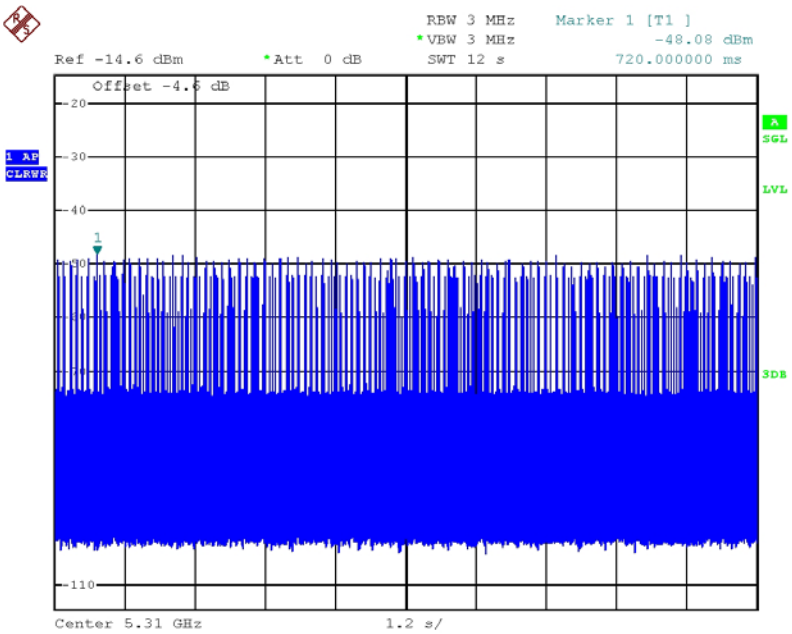
EUT (Master) Data Traffic Plot



Date: 4.NOV.2013 08:46:11

For 802.11n 40MHz / 5310 MHz:

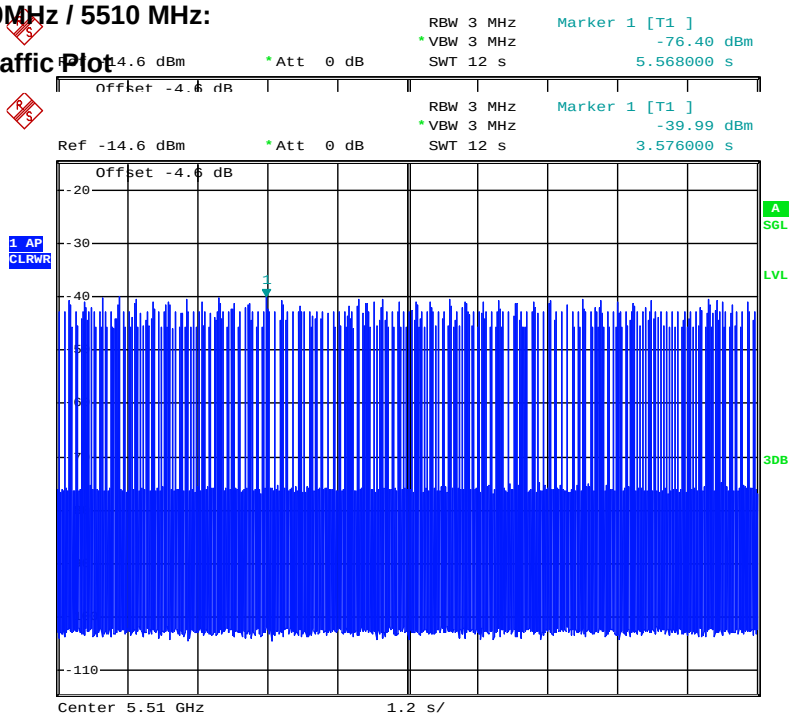
Slave Data Traffic Plot



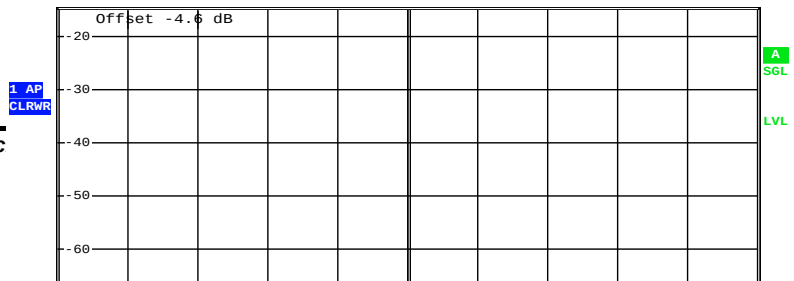
Date: 4.NOV.2013 03:22:46

For 802.11n 40MHz / 5510 MHz:

Slave Data Traffic Plot

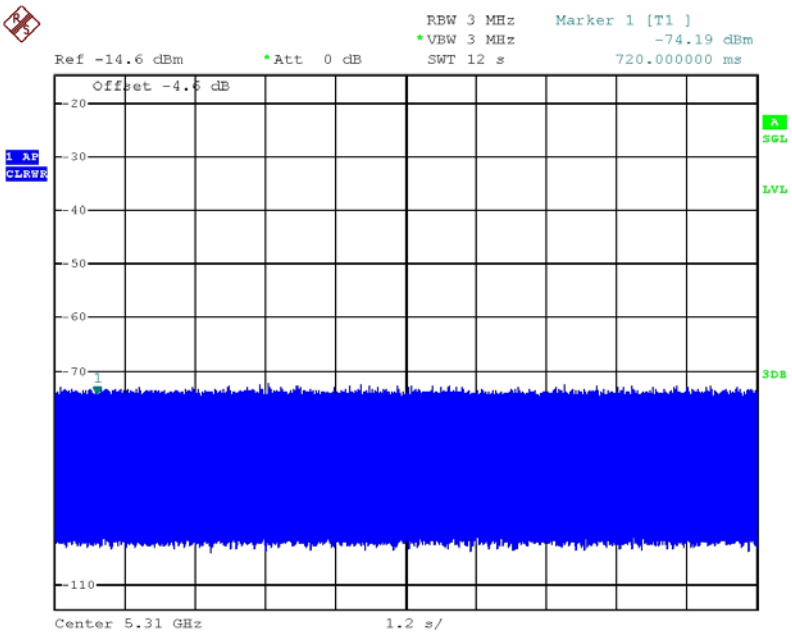


Date: 4.NOV.2013 08:46:11



For 802.11n 40MHz / 5310 MHz:

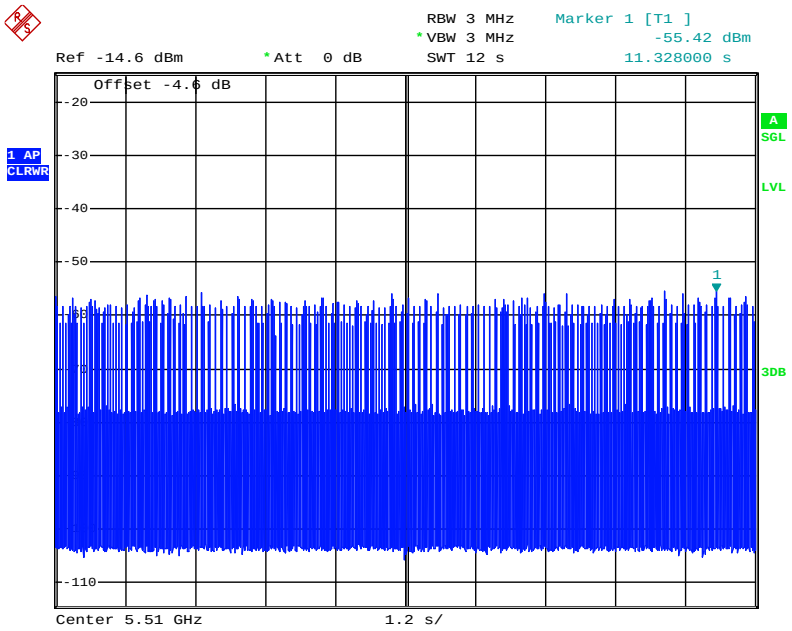
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 03:23:39

For 802.11n 40MHz / 5510 MHz:

Without Data Traffic Plot (Noise Plot)

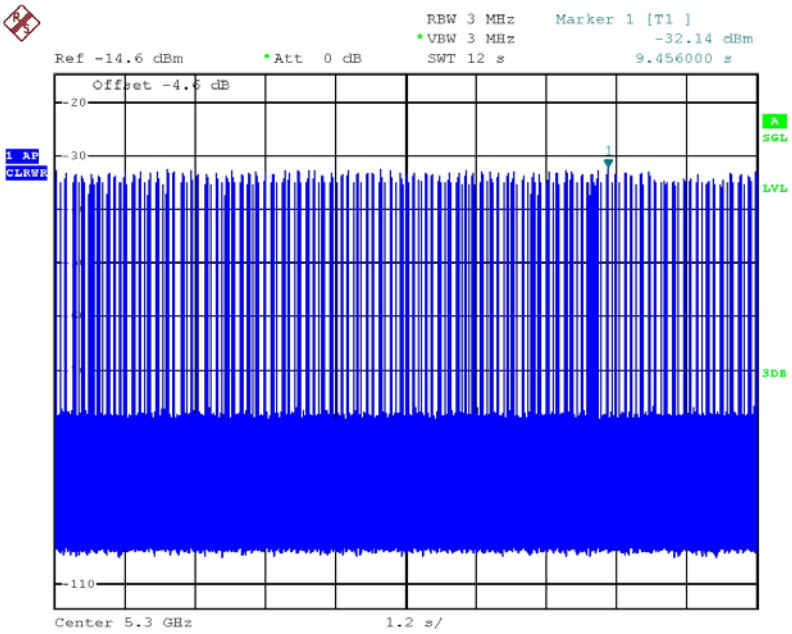


Date: 4.NOV.2013 08:47:00

<Operating Mode: Slave without radar detection>

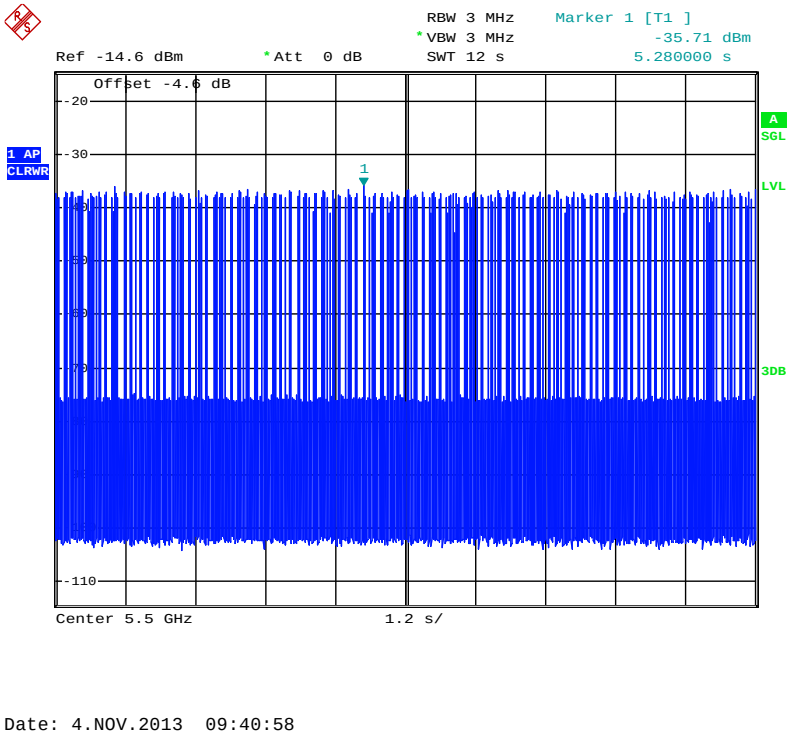
For 802.11a / 5300 MHz:

EUT (Slave) Data Traffic Plot



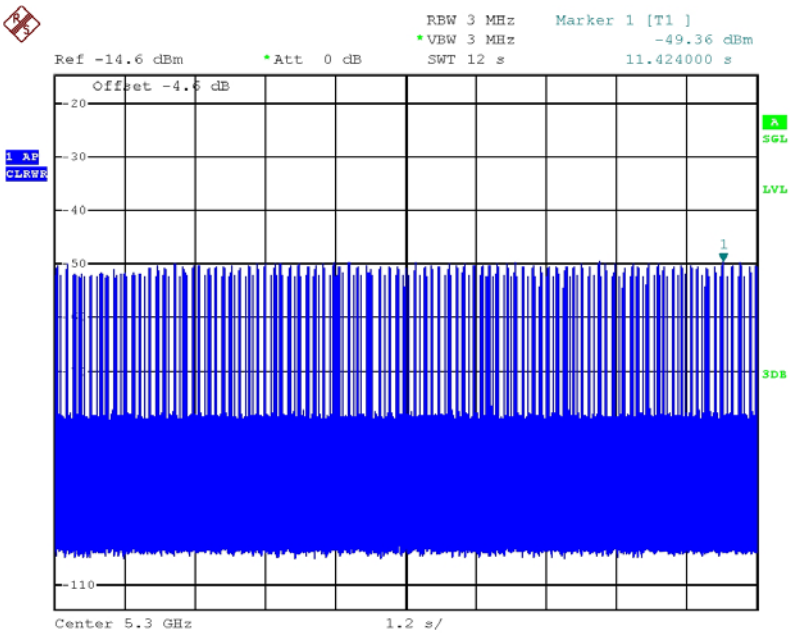
For 802.11a / 5500 MHz:

EUT (Slave) Data Traffic Plot



For 802.11a / 5300 MHz:

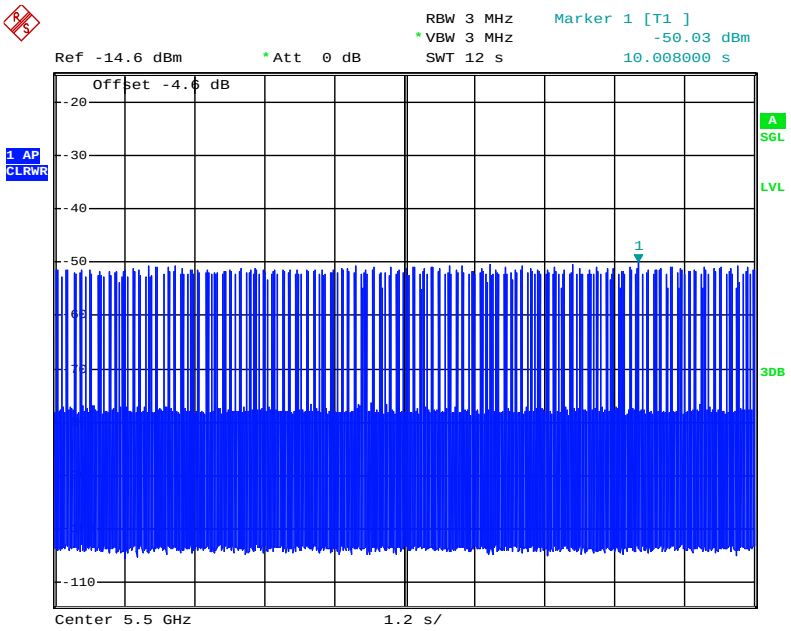
Master Data Traffic Plot



Date: 6.NOV.2013 02:05:01

For 802.11a / 5500 MHz:

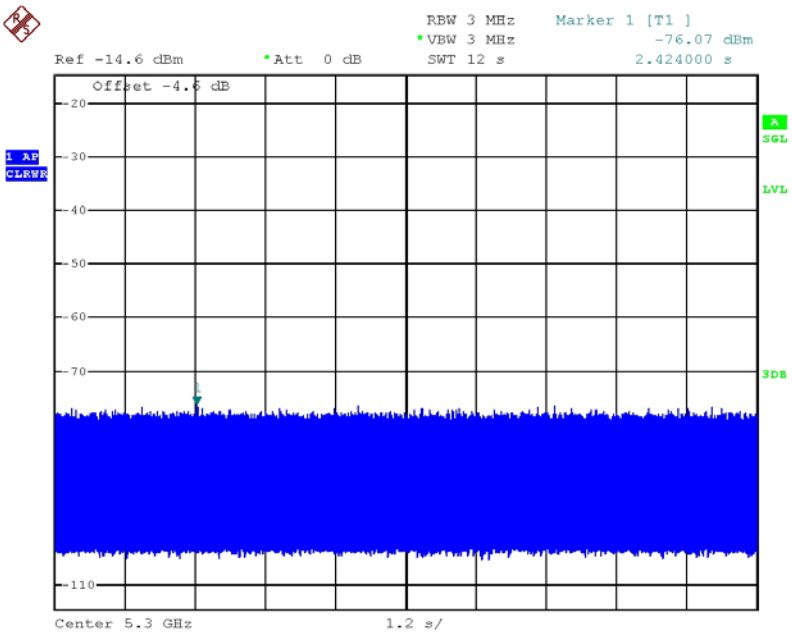
Master Data Traffic Plot



Date: 4.NOV.2013 09:42:41

For 802.11a / 5300 MHz:

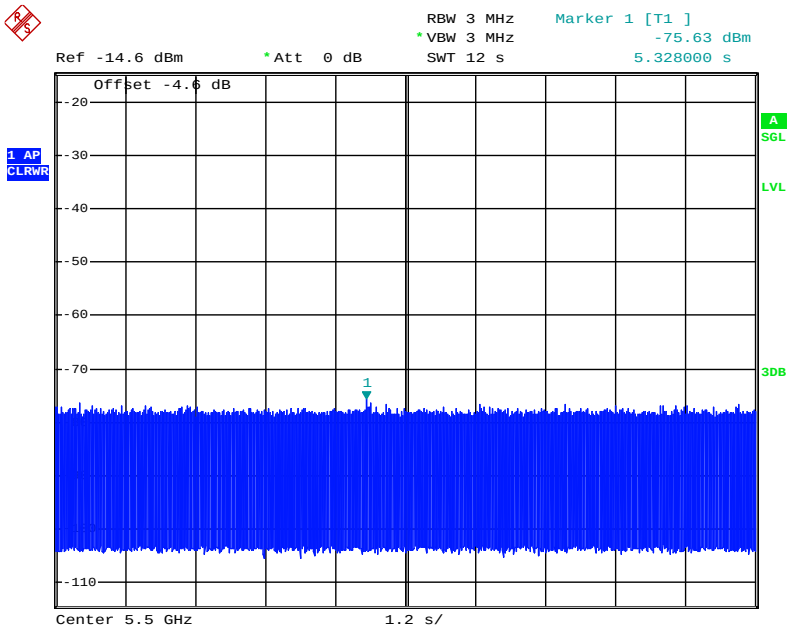
Without Data Traffic Plot (Noise Plot)



Date: 6.NOV.2013 02:05:30

For 802.11a / 5500 MHz:

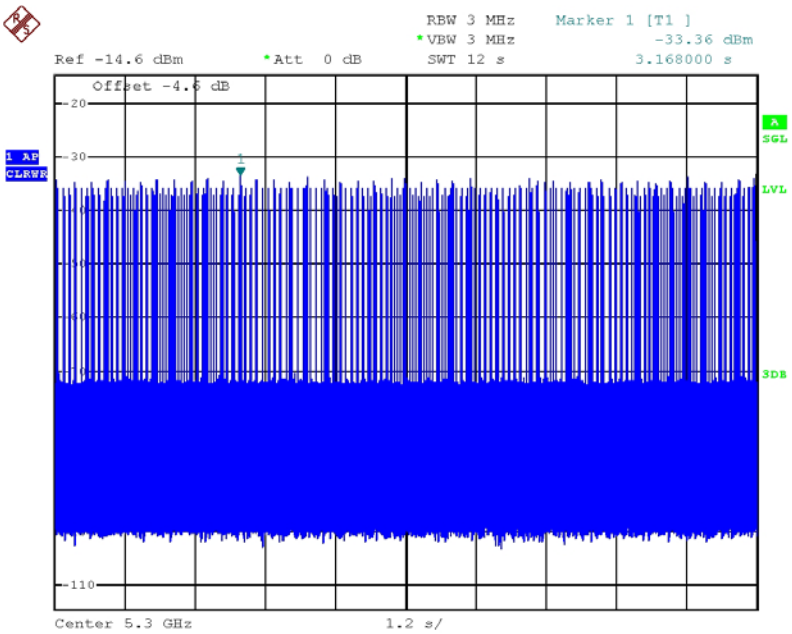
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 09:44:14

For 802.11n 20MHz / 5300 MHz:

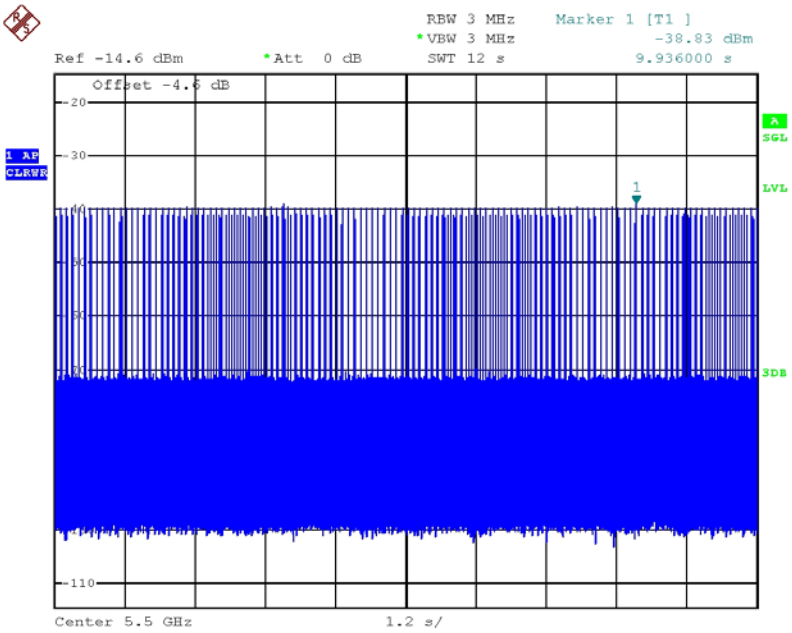
EUT (Slave) Data Traffic Plot



Date: 4.NOV.2013 06:10:49

For 802.11n 20MHz / 5500 MHz:

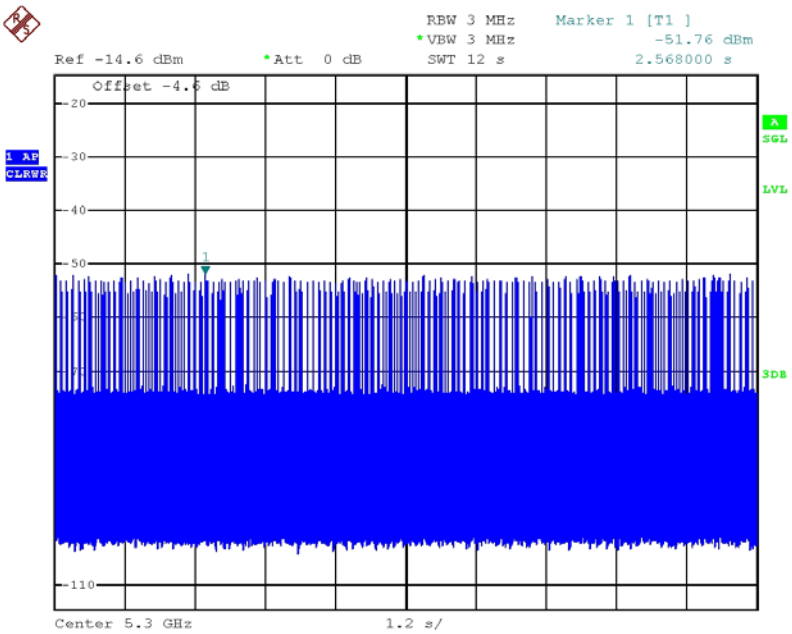
EUT (Slave) Data Traffic Plot



Date: 4.NOV.2013 06:56:32

For 802.11n 20MHz / 5300 MHz:

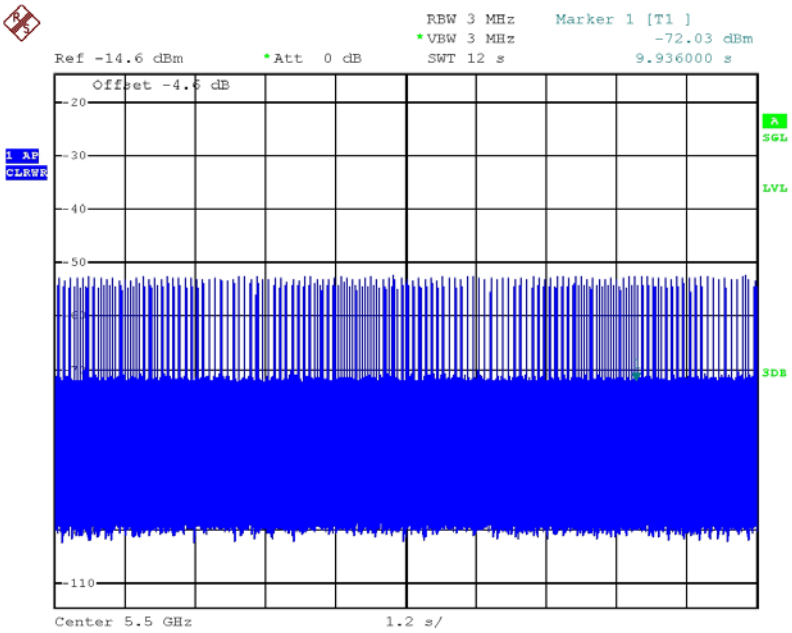
Master Data Traffic Plot



Date: 4.NOV.2013 06:14:44

For 802.11n 20MHz / 5500 MHz:

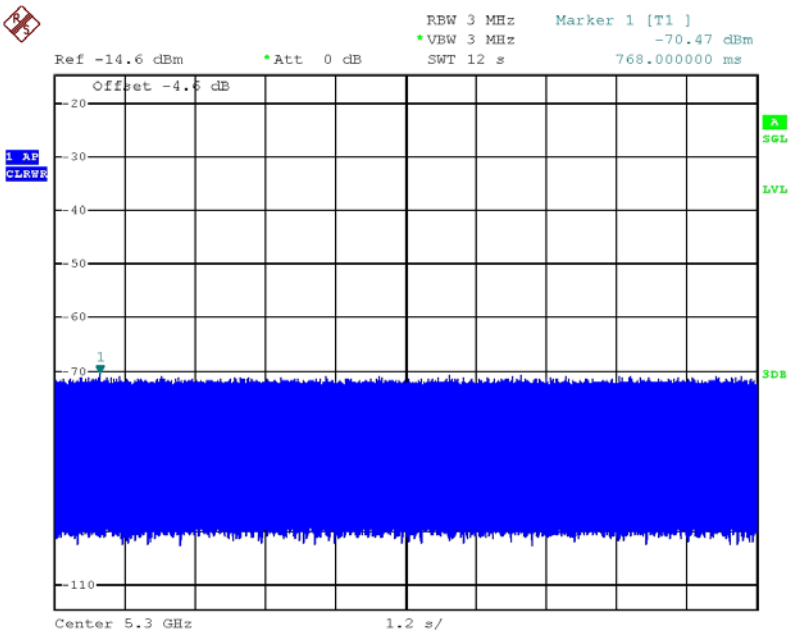
Master Data Traffic Plot



Date: 4.NOV.2013 06:57:24

For 802.11n 20MHz / 5300 MHz:

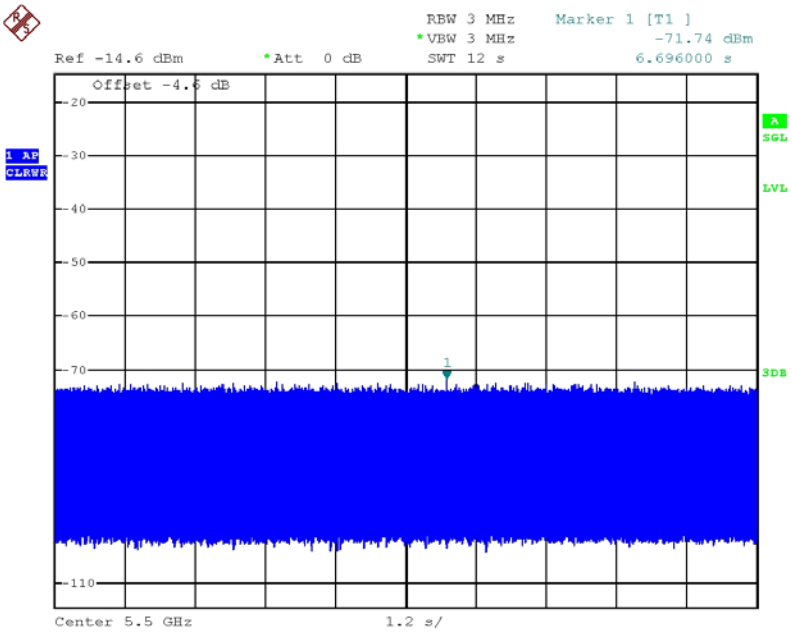
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 06:09:34

For 802.11n 20MHz / 5500 MHz:

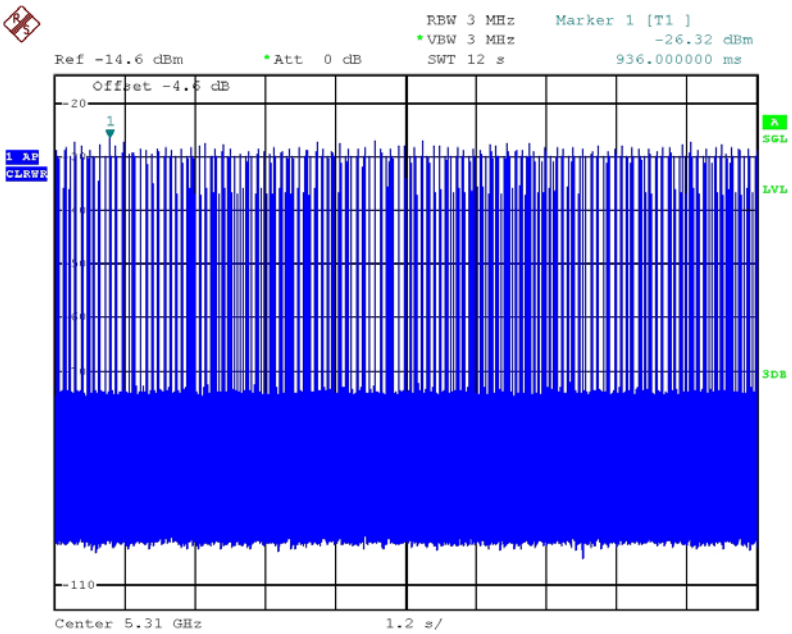
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 06:54:06

For 802.11n 40MHz / 5310 MHz:

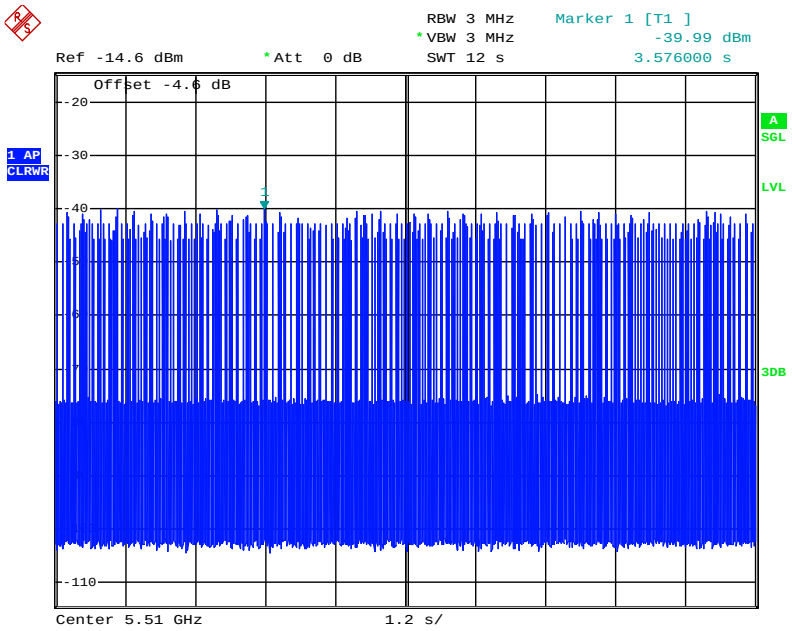
EUT (Slave) Data Traffic Plot



Date: 4.NOV.2013 03:24:12

For 802.11n 40MHz / 5510 MHz:

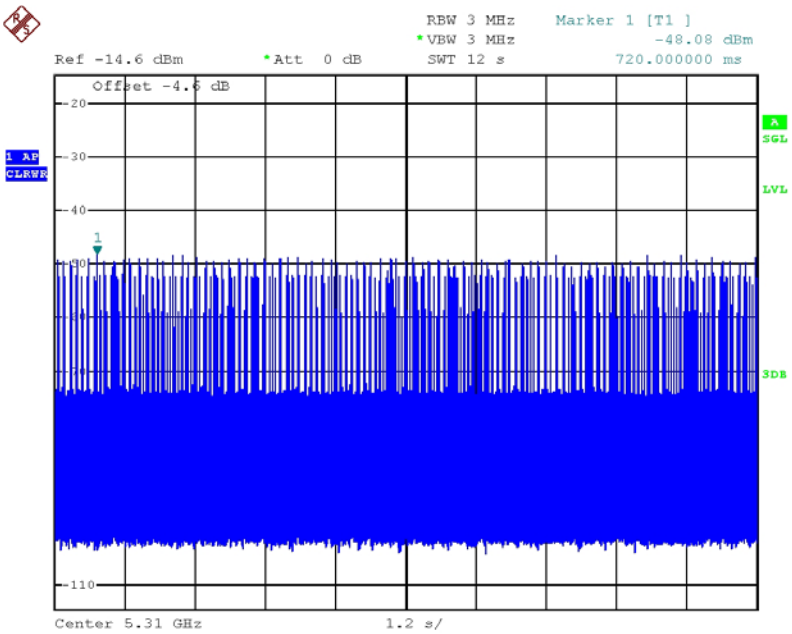
EUT (Slave) Data Traffic Plot



Date: 4.NOV.2013 08:46:11

For 802.11n 40MHz / 5310 MHz:

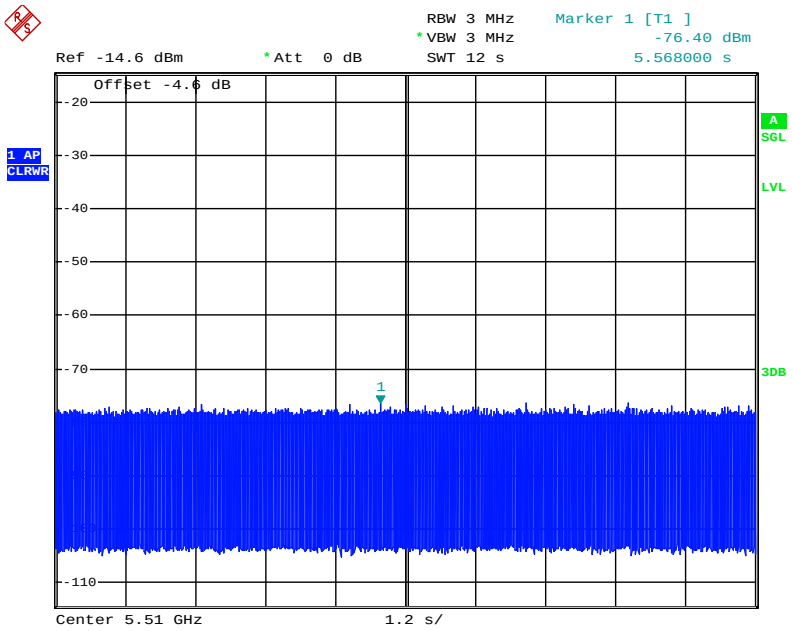
Master Data Traffic Plot



Date: 4.NOV.2013 03:22:46

For 802.11n 40MHz / 5510 MHz:

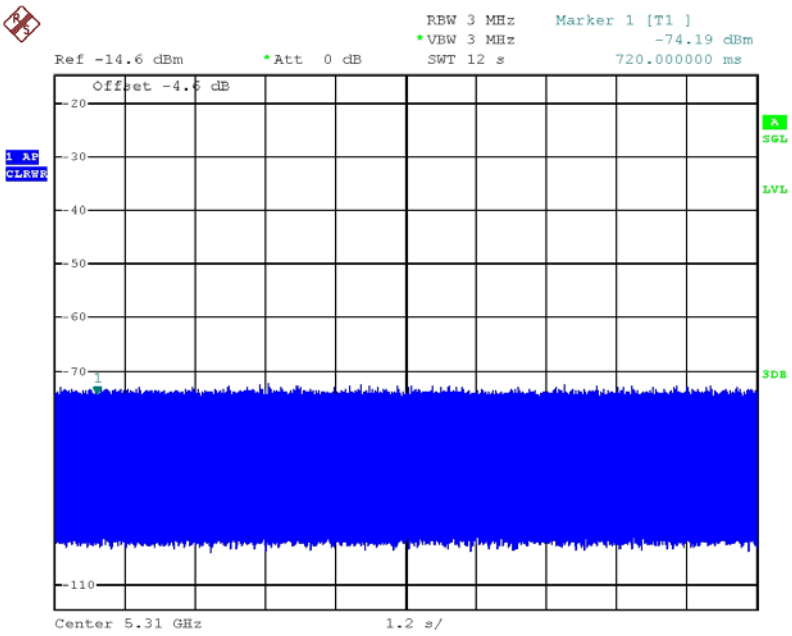
Master Data Traffic Plot



Date: 4.NOV.2013 08:47:28

For 802.11n 40MHz / 5310 MHz:

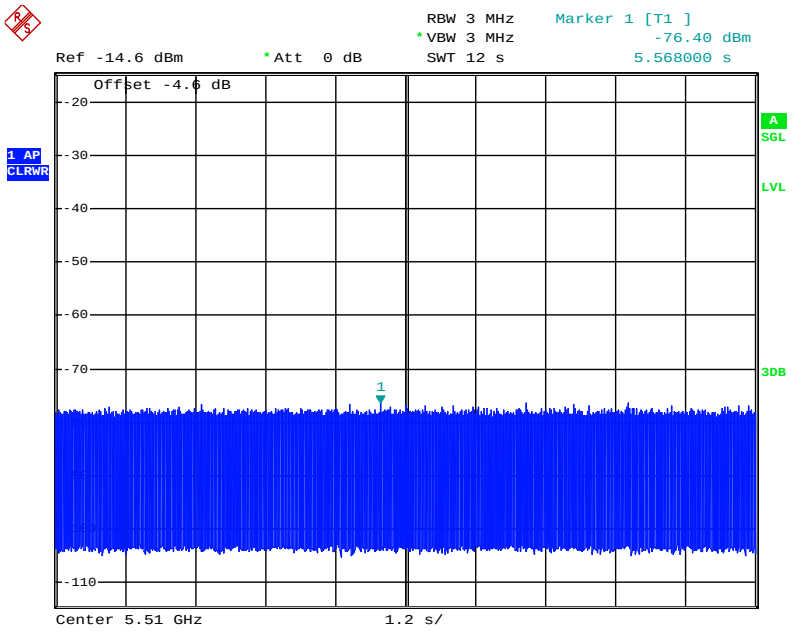
Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 03:23:39

For 802.11n 40MHz / 5510 MHz:

Without Data Traffic Plot (Noise Plot)



Date: 4.NOV.2013 08:47:28

4.2 UNII Detection Bandwidth Measurement

4.2.1 Limit

Minimum 80% of the UNII 99% transmission power bandwidth. During the *U-NII Detection Bandwidth* detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

4.2.2 Test Procedures

1. Adjust the equipment to produce a single Burst of the Short Pulse Radar Type 1 at the center frequency of the UUT Operating Channel at the specified DFS Detection Threshold level.
2. The generating equipment is configured as shown in the Radiated Test Setup above section 4.1.9(2).
3. The UUT is set up as a stand-alone device (no associated Client and no traffic). Frame based systems will be set to a talk/listen ratio of 0%/100% during this test.
4. Generate single radar Burst, and note the response of the UUT. Repeat for a minimum of 10 trials. The UUT must detect the Radar Waveform using the specified U-NII Detection Bandwidth criterion.
5. Starting at the center frequency of the UUT operating Channel, increase the radar frequency in 1 MHz steps, repeating the above item 4 test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Record the highest frequency (denote as FH) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies above FH is not required to demonstrate compliance.
6. Starting at the center frequency of the UUT operating Channel, decrease the radar frequency in 1 MHz steps, repeating the above item 4 test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Record the lowest frequency (denote as FL) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies below FL is not required to demonstrate compliance.
7. The U-NII Detection Bandwidth is calculated as follows: U-NII Detection Bandwidth = FH – FL
8. The U-NII Detection Bandwidth must be at least 80% of the UUT transmitter 99% power, otherwise, the UUT does not comply with DFS requirements.

4.2.3 Test Deviation

There is no deviation with the original standard.

4.2.4 Test Result for UNII Detection Bandwidth

<Operating Mode: Master>

For 802.11a / 5300 MHz: <CH60>

UUT Frequency=5300MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5290	0	0	0	0	0	0	0	0	0	0	0
5291	0	0	0	0	0	0	0	0	0	0	0
5292 (FL)	1	1	1	1	1	1	1	1	0	1	90
5293	1	1	1	1	1	1	1	1	1	1	100
5294	1	1	1	1	1	1	1	1	1	1	100
5295	1	1	1	1	1	1	1	1	1	1	100
5296	1	1	1	1	1	1	1	1	1	1	100
5297	1	1	1	1	1	1	1	1	1	1	100
5298	1	1	1	1	1	1	1	1	1	1	100
5299	1	1	1	1	1	1	1	1	1	1	100
5300	1	1	1	1	1	1	1	1	1	1	100
5301	1	1	1	1	1	1	1	1	1	1	100
5302	1	1	1	1	1	1	1	1	1	1	100
5303	1	1	1	1	1	1	1	1	1	1	100
5304	1	1	1	1	1	1	1	1	1	1	100
5305	1	1	1	1	1	1	1	1	1	1	100
5306	1	1	1	1	1	1	1	1	1	1	100
5307	1	1	1	1	1	1	1	1	1	1	100
5308	1	1	1	1	1	1	1	1	1	1	100
5309	1	1	1	1	1	1	1	1	1	1	100
5310	1	1	1	1	1	1	1	1	1	1	100
5311	1	1	1	1	1	1	1	1	1	1	100
5312	1	1	1	1	1	1	1	1	1	1	100
5313	1	1	1	1	1	1	1	1	1	1	100
5314	1	1	1	1	1	1	1	1	1	1	100
5315	1	1	1	1	1	1	1	1	1	1	100
5316	1	1	1	1	1	1	1	1	1	1	100
5317	1	1	1	1	1	1	1	1	1	1	100
5318	1	1	1	1	1	1	1	1	1	1	100
5319	1	1	1	1	1	1	1	1	1	1	100

5320	1	1	1	1	1	1	1	1	1	1	100
5321	1	1	1	1	1	1	1	1	1	1	100
5322	1	1	1	1	1	1	1	1	1	1	100
5323	1	1	1	1	1	1	1	1	1	1	100
5324	1	1	1	1	1	1	1	1	1	1	100
5325	1	1	1	1	1	1	1	1	1	1	100
5326 (FH)	1	1	1	1	1	0	1	1	1	1	90
5327	1	1	0	1	0	1	0	1	0	1	60
Detection Bandwidth = FH-FL = 5326 MHz – 5292 MHz + 1= 35 MHz											
UUT 99% Bandwidth = 20 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 20 MHz x 80% = 16 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 16 MHz. (See the 99% BW section of the RF report for further measurement details).

For 802.11a / 5500 MHz: <CH100>

UUT Frequency=5500MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5491	0	0	0	0	0	0	0	0	0	0	0
5492 (FL)	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
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
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	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	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
5511	1	1	1	1	1	1	1	1	1	1	100
5512	1	1	1	1	1	1	1	1	1	1	100
5513	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	100
5520	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	1	1	1	1	100
5524	1	1	1	1	1	1	1	1	1	1	100
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 (FH)	1	1	1	1	1	1	1	1	1	1	100
5529	0	1	0	0	0	1	1	0	1	1	50
Detection Bandwidth = FH-FL = 5528 MHz – 5492 MHz + 1= 37 MHz											
UUT 99% Bandwidth = 20 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 20 MHz x 80% = 16 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 16 MHz. (See the 99% BW section of the RF report for further measurement details).

For 802.11n 20MHz / 5300 MHz: <CH60>

UUT Frequency=5300MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5291	0	1	0	1	0	1	0	1	1	0	50
5292 (FL)	1	1	1	1	1	1	1	1	1	1	100
5293	1	1	1	1	1	1	1	1	1	1	100
5294	1	1	1	1	1	1	1	1	1	1	100
5295	1	1	1	1	1	1	1	1	1	1	100
5296	1	1	1	1	1	1	1	1	1	1	100
5297	1	1	1	1	1	1	1	1	1	1	100
5298	1	1	1	1	1	1	1	1	1	1	100
5299	1	1	1	1	1	1	1	1	1	1	100
5300	1	1	1	1	1	1	1	1	1	1	100
5301	1	1	1	1	1	1	1	1	1	1	100
5302	1	1	1	1	1	1	1	1	1	1	100
5303	1	1	1	1	1	1	1	1	1	1	100
5304	1	1	1	1	1	1	1	1	1	1	100
5305	1	1	1	1	1	1	1	1	1	1	100
5306	1	1	1	1	1	1	1	1	1	1	100
5307	1	1	1	1	1	1	1	1	1	1	100
5308	1	1	1	1	1	1	1	1	1	1	100
5309	1	1	1	1	1	1	1	1	1	1	100
5310	1	1	1	1	1	1	1	1	1	1	100
5311	1	1	1	1	1	1	1	1	1	1	100
5312	1	1	1	1	1	1	1	1	1	1	100
5313	1	1	1	1	1	1	1	1	1	1	100
5314	1	1	1	1	1	1	1	1	1	1	100
5315	1	1	1	1	1	1	1	1	1	1	100
5316	1	1	1	1	1	1	1	1	1	1	100
5317	1	1	1	1	1	1	1	1	1	1	100
5318	1	1	1	1	1	1	1	1	1	1	100
5319	1	1	1	1	1	1	1	1	1	1	100
5320 (FH)	1	1	1	1	1	1	1	1	1	1	100
5321	0	1	0	1	0	1	1	1	1	0	60

5322	0	0	0	0	0	0	0	0	0	0	0
Detection Bandwidth = FH-FL = 5320 MHz – 5292 MHz + 1= 29 MHz											
UUT 99% Bandwidth = 20 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 20 MHz x 80% = 16 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 16 MHz. (See the 99% BW section of the RF report for further measurement details).

For 802.11n 20MHz / 5500 MHz: <CH100>

UUT Frequency=5500MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5491	0	0	0	0	0	0	0	0	0	0	0
5492 (FL)	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
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
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	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	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
5511	1	1	1	1	1	1	1	1	1	1	100
5512	1	1	1	1	1	1	1	1	1	1	100
5513	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	100
5520	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	1	1	1	1	100
5524	1	1	1	1	1	1	1	1	1	1	100
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 (FH)	1	1	1	1	1	1	1	1	1	1	100
5528	0	0	0	0	0	0	0	0	0	0	0
5529	0	0	0	0	0	0	0	0	0	0	0
Detection Bandwidth = FH-FL = 5527 MHz – 5492 MHz + 1 = 36 MHz											
UUT 99% Bandwidth = 20 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 20 MHz x 80% = 16 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 16 MHz. (See the 99% BW section of the RF report for further measurement details).

For 802.11n 40MHz / 5310 MHz: <CH62>

UUT Frequency=5310MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5290	0	0	0	0	0	0	0	0	0	0	0
5291	0	0	0	0	0	0	0	0	0	0	0
5292 (FL)	1	1	1	1	1	1	1	1	1	1	100
5293	1	1	1	1	1	1	1	1	1	1	100
5294	1	1	1	1	1	1	1	1	1	1	100
5295	1	1	1	1	1	1	1	1	1	1	100
5296	1	1	1	1	1	1	1	1	1	1	100
5297	1	1	1	1	1	1	1	1	1	1	100
5298	1	1	1	1	1	1	1	1	1	1	100
5299	1	1	1	1	1	1	1	1	1	1	100
5300	1	1	1	1	1	1	1	1	1	1	100
5301	1	1	1	1	1	1	1	1	1	1	100
5302	1	1	1	1	1	1	1	1	1	1	100
5303	1	1	1	1	1	1	1	1	1	1	100
5304	1	1	1	1	1	1	1	1	1	1	100
5305	1	1	1	1	1	1	1	1	1	1	100
5306	1	1	1	1	1	1	1	1	1	1	100
5307	1	1	1	1	1	1	1	1	1	1	100
5308	1	1	1	1	1	1	1	1	1	1	100
5309	1	1	1	1	1	1	1	1	1	1	100
5310	1	1	1	1	1	1	1	1	1	1	100
5311	1	1	1	1	1	1	1	1	1	1	100
5312	1	1	1	1	1	1	1	1	1	1	100
5313	1	1	1	1	1	1	1	1	1	1	100
5314	1	1	1	1	1	1	1	1	1	1	100
5315	1	1	1	1	1	1	1	1	1	1	100
5316	1	1	1	1	1	1	1	1	1	1	100
5317	1	1	1	1	1	1	1	1	1	1	100
5318	1	1	1	1	1	1	1	1	1	1	100
5319	1	1	1	1	1	1	1	1	1	1	100
5320	1	1	1	1	1	1	1	1	1	1	100

5321	1	1	1	1	1	1	1	1	1	1	100
5322	1	1	1	1	1	1	1	1	1	1	100
5323	1	1	1	1	1	1	1	1	1	1	100
5324	1	1	1	1	1	1	1	1	1	1	100
5325	1	1	1	1	1	1	1	1	1	1	100
5326	1	1	1	1	1	1	1	1	1	1	100
5327	1	1	1	1	1	1	1	1	1	1	100
5328 (FH)	1	1	1	1	1	1	1	1	1	0	90
5329	0	0	0	0	0	0	0	0	0	0	0
Detection Bandwidth = FH-FL = 5328 MHz – 5292 MHz + 1= 37 MHz											
UUT 99% Bandwidth = 40 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 40 MHz x 80% = 32 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 32 MHz. (See the 99% BW section of the RF report for further measurement details).

For 802.11n 40MHz / 5510 MHz: <CH102>

UUT Frequency=5510MHz											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5491	0	0	0	0	0	0	0	0	0	0	0
5492 (FL)	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
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
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	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	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
5511	1	1	1	1	1	1	1	1	1	1	100
5512	1	1	1	1	1	1	1	1	1	1	100
5513	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	100
5520	1	1	1	1	1	1	1	1	1	1	100
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	1	1	1	1	1	1	1	100
5524	1	1	1	1	1	1	1	1	1	1	100
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 (FH)	1	1	1	1	1	1	1	1	1	1	100
5528	0	0	0	0	0	0	0	0	0	0	0
5529	0	0	0	0	0	0	0	0	0	0	0
5530	0	0	0	0	0	0	0	0	0	0	0
Detection Bandwidth = FH-FL = 5527 MHz – 5492 MHz + 1= 36 MHz											
UUT 99% Bandwidth = 40 MHz (see note)											
UNII Detection Bandwidth Min. Limit (MHz): 40 MHz x 80% = 16 MHz											

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300 MHz. The 99% channel bandwidth is 32 MHz. (See the 99% BW section of the RF report for further measurement details).

4.3 Initial Channel Availability Check Time Measurement

4.3.1 Channel Availability Check Limit

The UUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

4.3.2 Initial Channel Availability Check Time

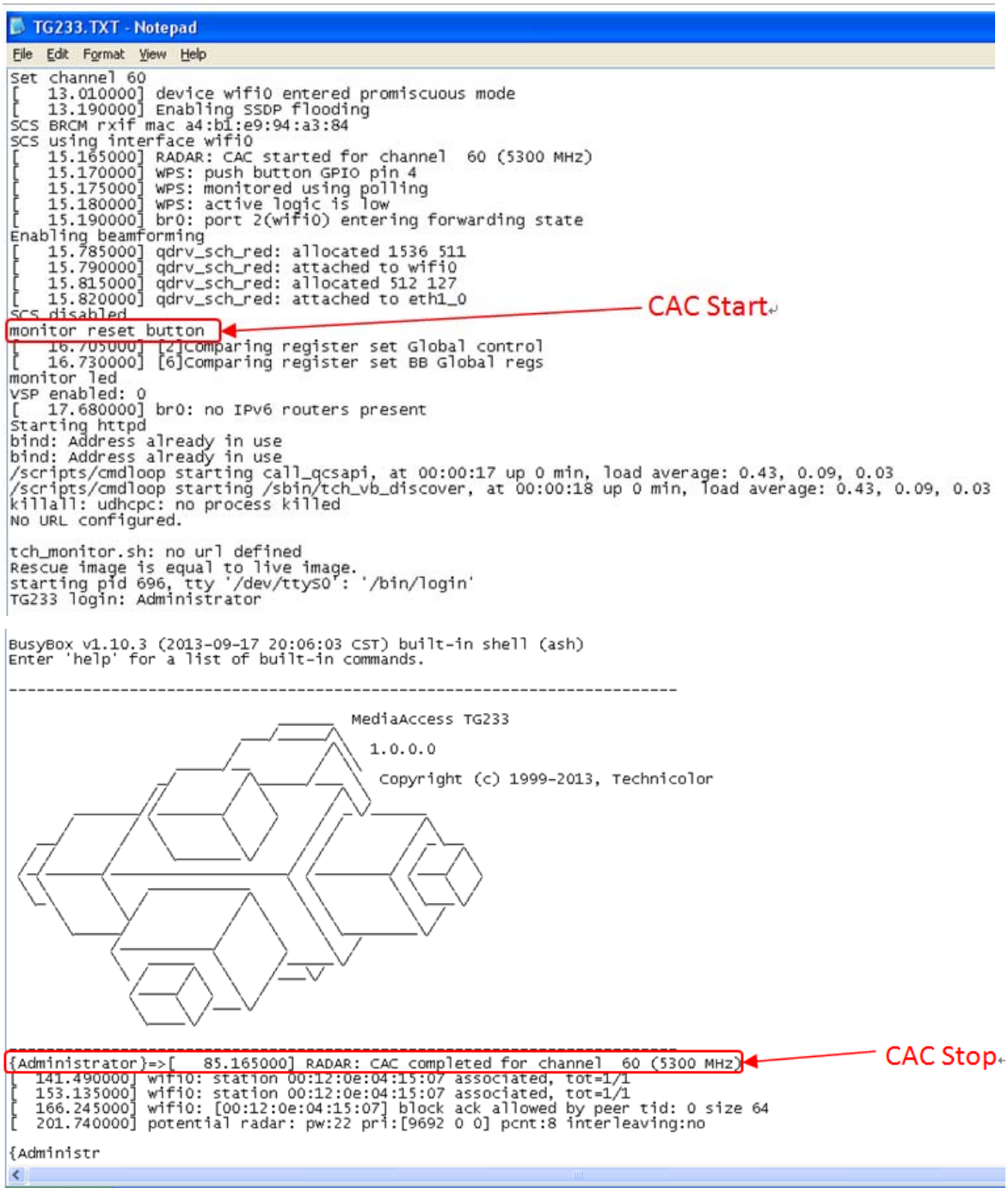
Test Procedures

1. Set configuration as section 4.1.9 (2) and set spectrum analyzer as section 4.1.8
2. Power on the UUT and observe the information from console. T1 is the timing showing ‘start CAC message’from power on. T2 is the timing showing ‘end CAC message’from power on and start to link on DFS channel.
3. Use spectrum analyzer to monitor T1 & T2
4. Channel Availability Check time (T2 – T1) should not less than 60 seconds.
5. T1 and T2 shall be recorded in the report

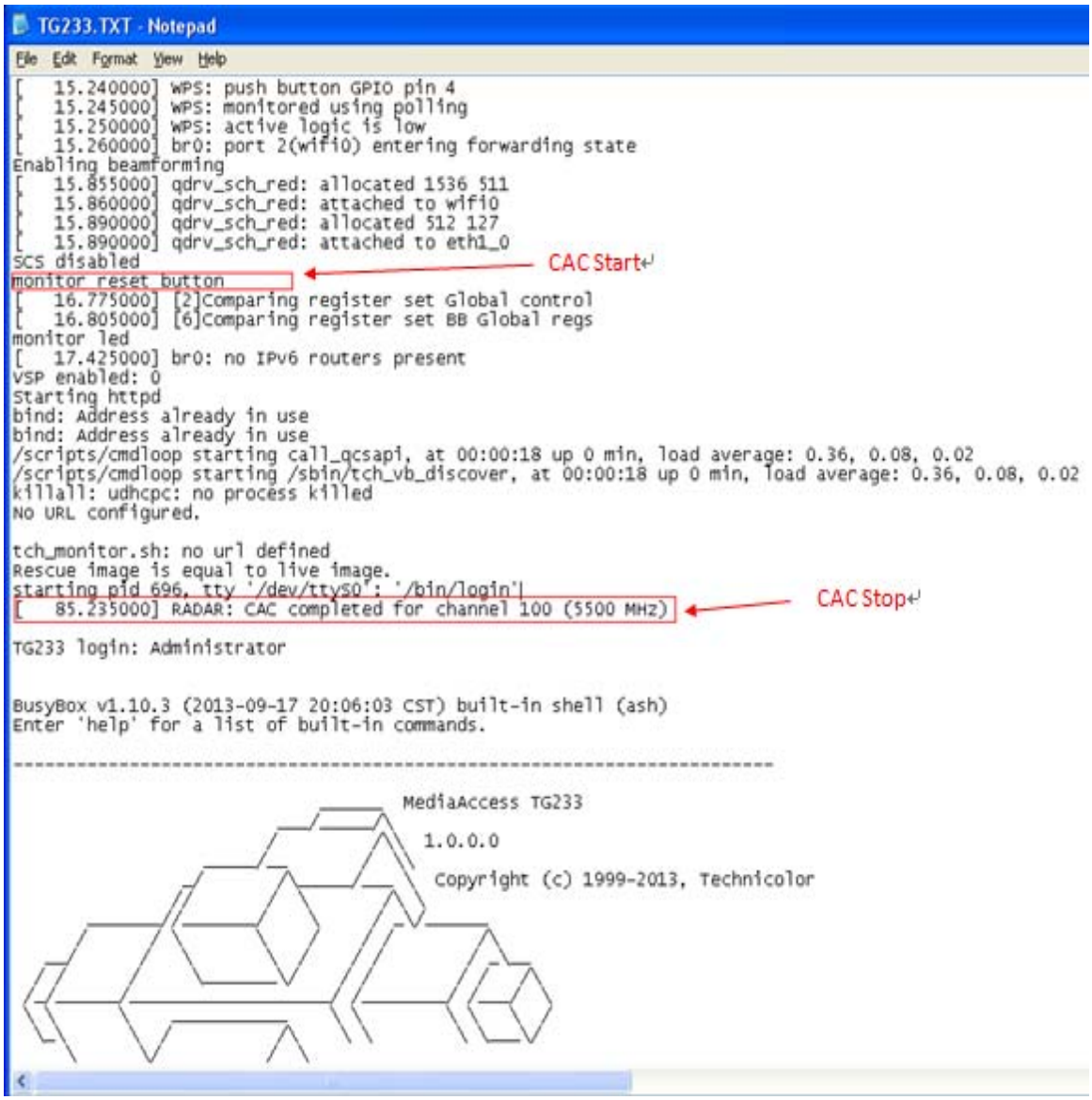
Console Information:

<Operating Mode: Master>

5250~5350MHz



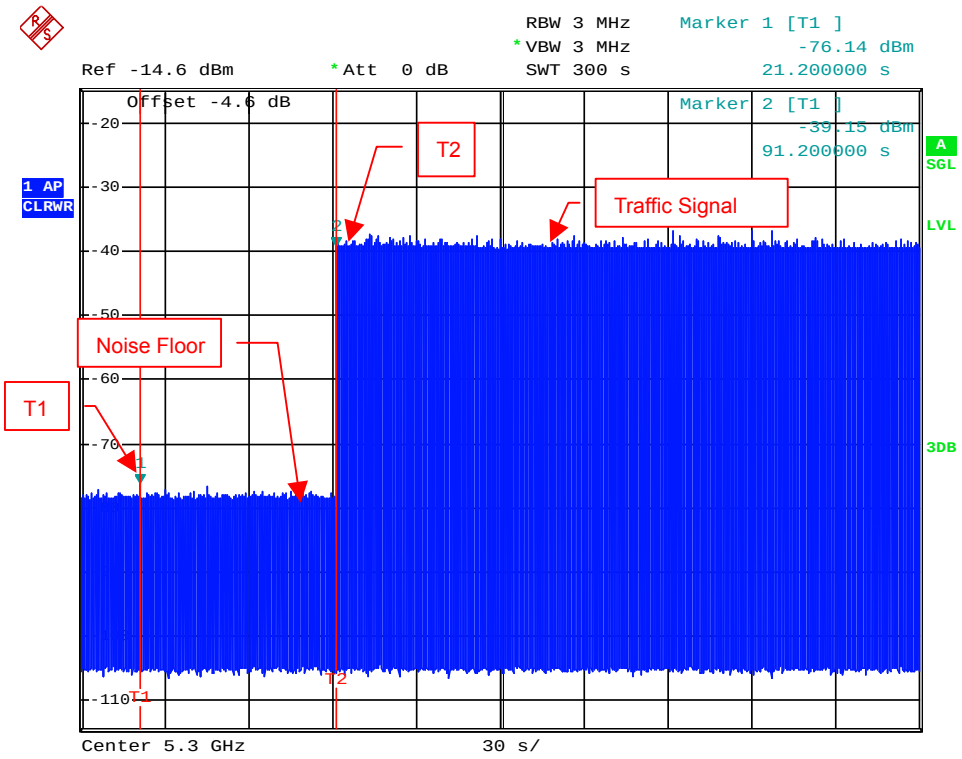
5470~5725MHz



4.3.3 Initial Channel Availability Check Time

<Operating Mode: Master>

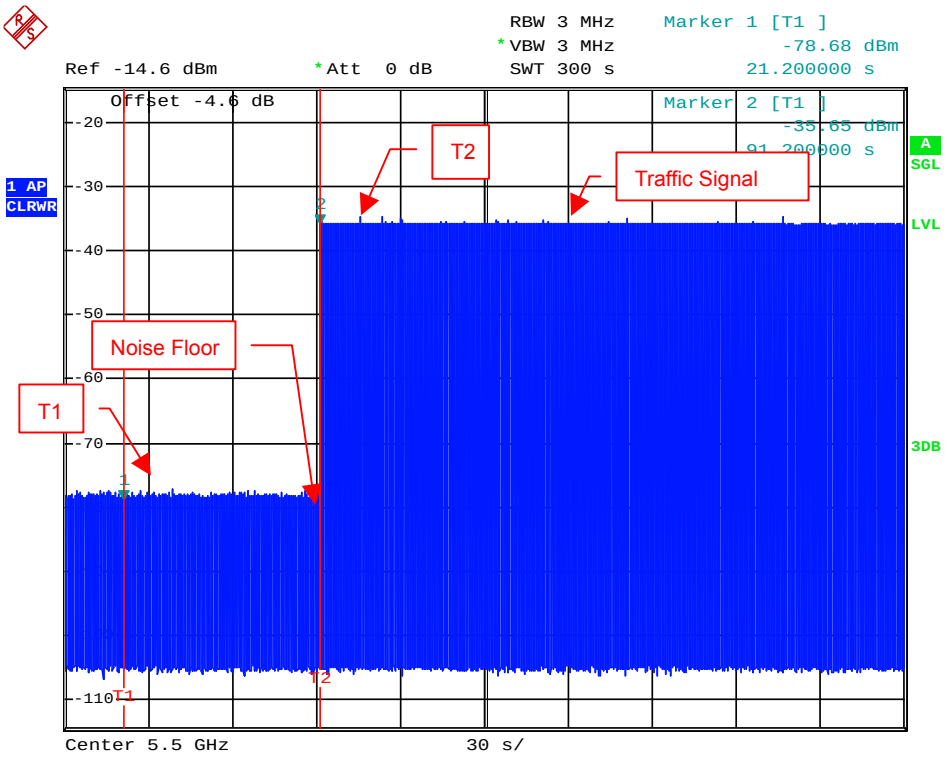
For 802.11a / 5300 MHz:



Date: 12.NOV.2013 05:59:24

NOTE: T1 denotes the end of power-up time period is 21.20 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.20 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

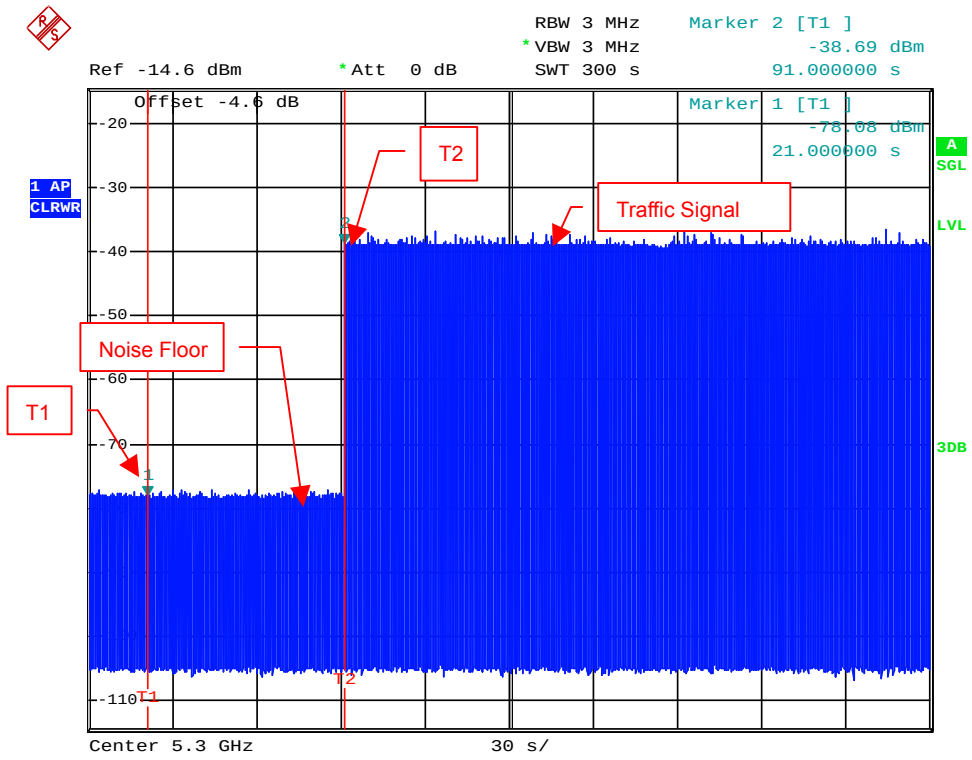
For 802.11a / 5500 MHz:



Date: 12.NOV.2013 06:07:57

NOTE: T1 denotes the end of power-up time period is 21.20 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.20 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

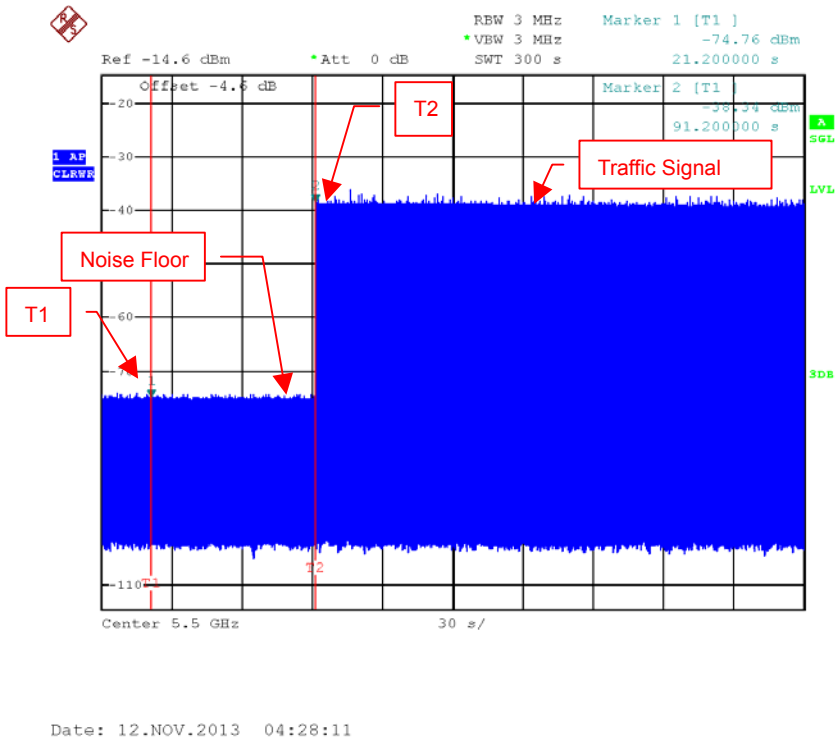
For 802.11n 20MHz / 5300 MHz:



Date: 12.NOV.2013 05:18:20

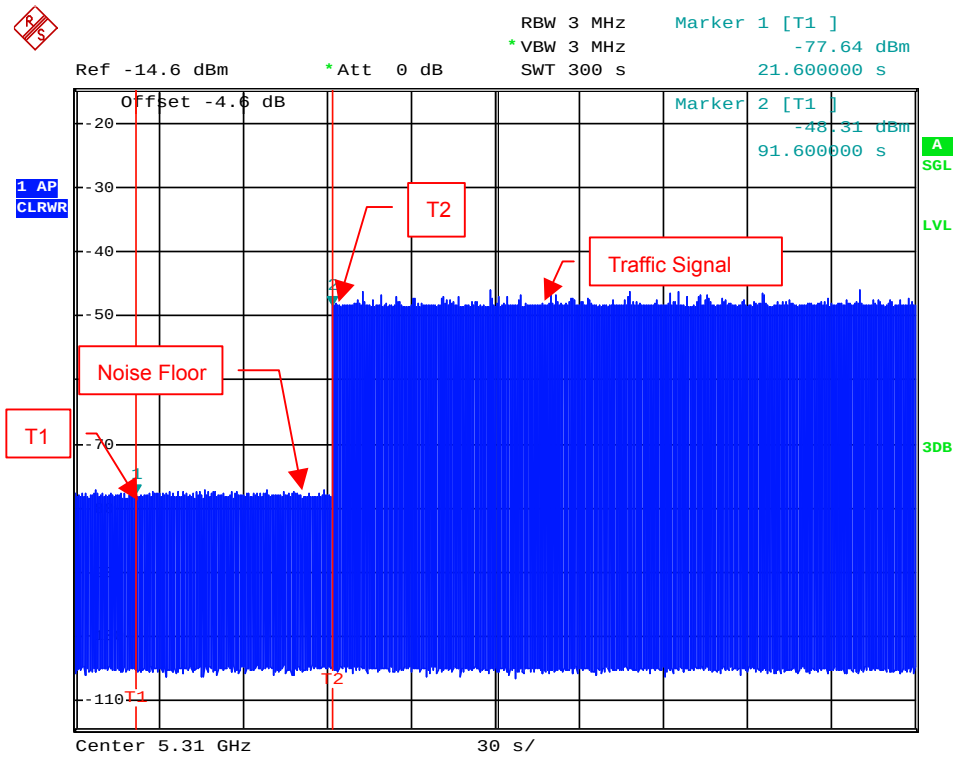
NOTE: T1 denotes the end of power-up time period is 21.00 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.00 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

For 802.11n 20MHz / 5500 MHz:



NOTE: T1 denotes the end of power-up time period is 21.20 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.20 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

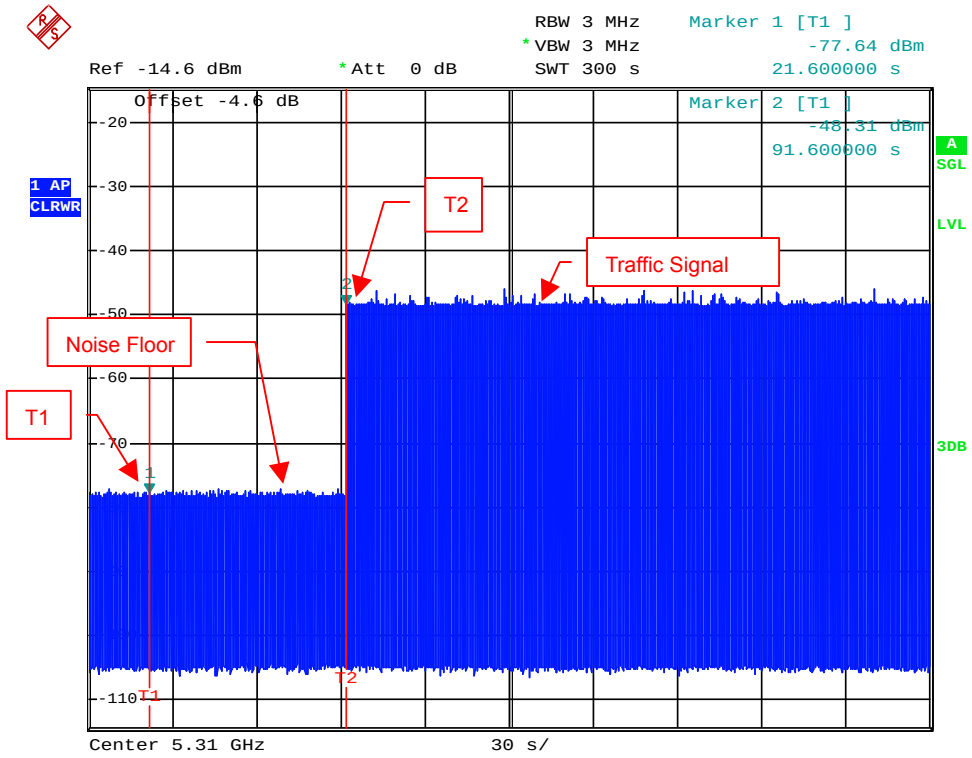
For 802.11n 40MHz / 5310 MHz:



Date: 12.NOV.2013 04:34:32

NOTE: T1 denotes the end of power-up time period is 21.60 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.60 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

For 802.11n 40MHz / 5310 MHz:



Date: 12.NOV.2013 04:34:32

NOTE: T1 denotes the end of power-up time period is 21.20 $_{th}$ second. T2 denotes the end of Channel Availability Check time is 91.20 $_{th}$ second. Channel Availability Check time is (T2 – T1) 70 seconds

4.3.4 Beginning and End of the Channel Availability Check Time

Test Procedures

1. Set configuration as section 4.1.9 (1) and do DFS calibration, and then adjust attenuator to make sure that the threshold value of the reference test signal defined in table 3 is (-63dBm) at the UUT's antenna port.
2. Set configuration as section 4.1.9 (2) and set spectrum analyzer as section 4.1.8
3. A single Burst of one of the Short Pulse Radar Types 1-4 will commence within a 6 second window starting at T1(for beginning).
4. A single Burst of one of the Short Pulse Radar Types 1-4 will commence within a 6 second window starting at T1 + 54 seconds. (for end).
5. Verify that during the 2.5 minute measurement window no UUT transmissions occurred on Chr. The Channel Availability Check results will be recorded.

Test Result of Channel Availability Check Time

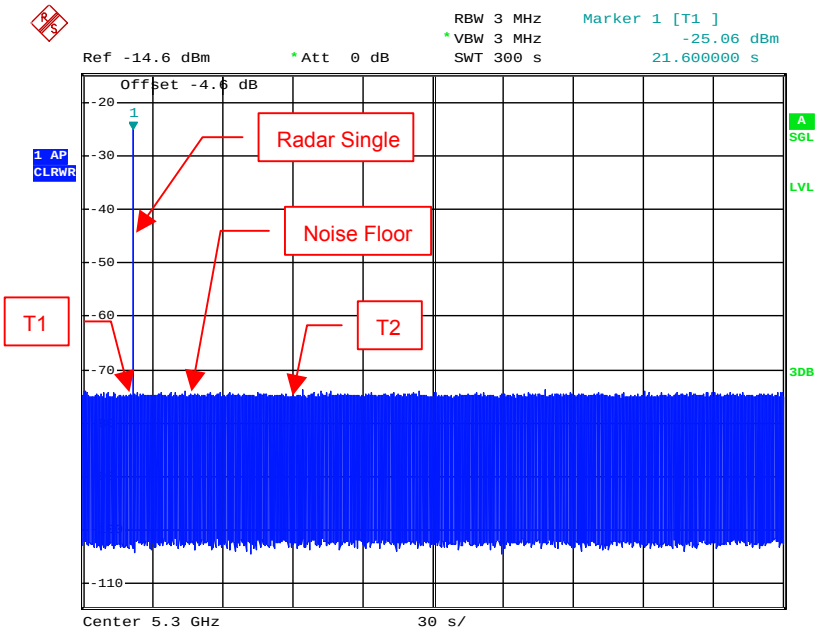
Beginning & End of the Channel Availability Check Result					
Minimum Antenna Gain (dBi)		**<5300MHz> Ant. 1 + 2 + 3 + 4: -0.37 dBi <5500MHz> Ant. 1 + 2 + 3 + 4: 0.03 dBi**			
Detection Threshold Level (dBm)		**-54 (DFS Detection Threshold + 10 dB)**			
Modulation Mode	**Freq. (MHz)**	**Radar Test Signal**	**Beginning CAC of Timing of radar burst (sec)**	**End CAC of Timing of radar burst (sec)**	**DFS Triggered (Yes/No)**
802.11a	5300 (F2)	Type 1	0-6	54-60	Yes
802.11a	5500 (F3)	Type 1	0-6	54-60	Yes
802.11n 20MHz	5300 (F2)	Type 1	0-6	54-60	Yes
802.11n 20MHz	5500 (F3)	Type 1	0-6	54-60	Yes

Beginning & End of the Channel Availability Check Result					
Minimum Antenna Gain (dBi)		**<5310MHz> Ant. 1 + 2 + 3 + 4: -0.37 dBi <5510MHz> Ant. 1 + 2 + 3 + 4: -0.30 dBi**			
Detection Threshold Level (dBm)		**-54 (DFS Detection Threshold + 10 dB)**			
Modulation Mode	**Freq. (MHz)**	**Radar Test Signal**	**Beginning CAC of Timing of radar burst (sec)**	**End CAC of Timing of radar burst (sec)**	**DFS Triggered (Yes/No)**
802.11n 40MHz	5310 (F2')	Type 1	0-6	54-60	Yes
802.11n 40MHz	5510 (F3')	Type 1	0-6	54-60	Yes

4.3.5 Test Result of Channel Availability Check Time Plots

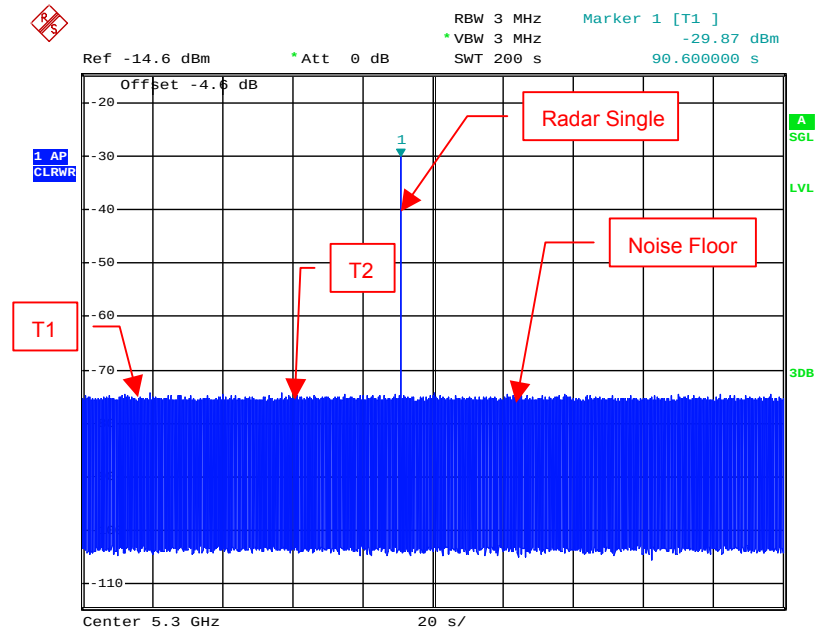
<Operating Mode: Master>

For 802.11a / 5300 MHz:



Date: 12.NOV.2013 03:12:30

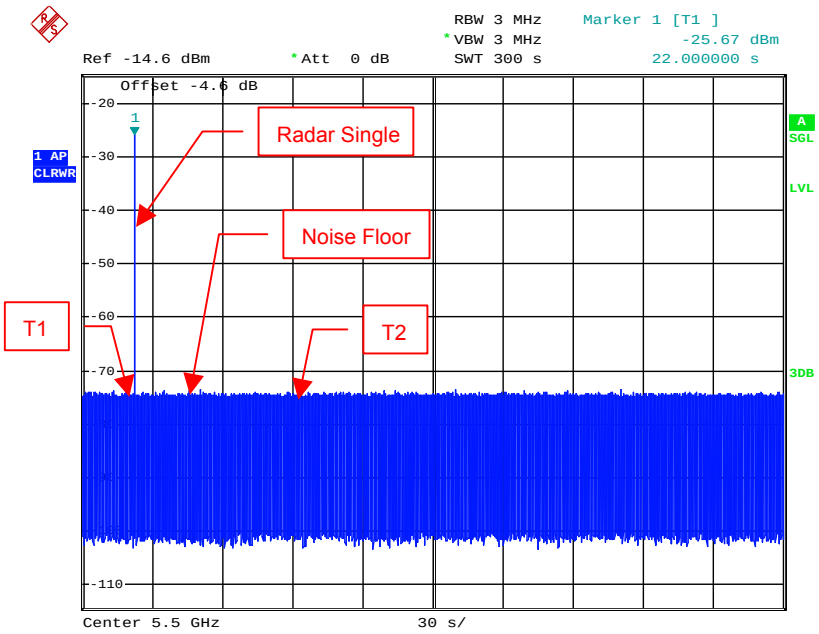
NOTE: T1 denotes the end of power-up time period is 21.60 *th* second. T2 denotes the 91.2 *th* second. The radar burst was commenced within 6 s after time T1



Date: 6.NOV.2013 02:31:20

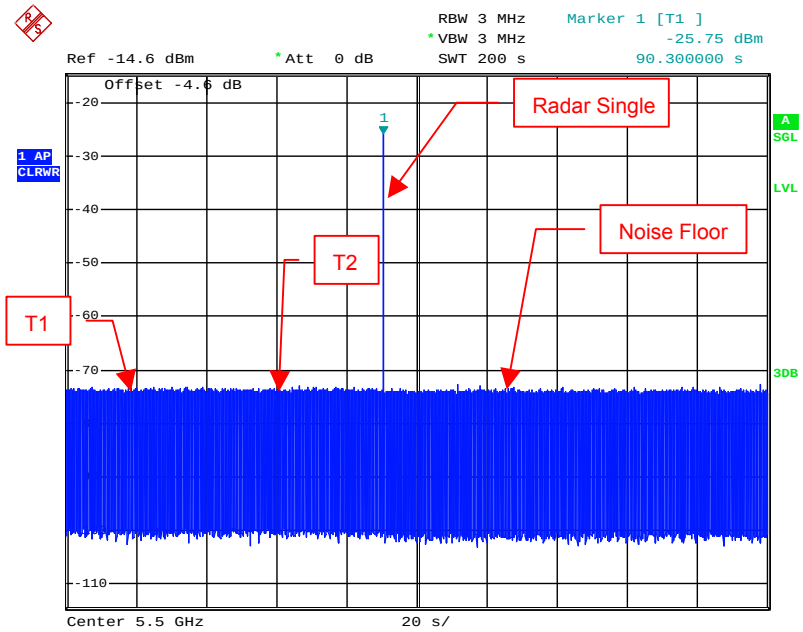
NOTE: T1 denotes the end of power-up time period is 90.60 *th* second. T2 denotes the 91.2 *th* second. The radar burst was commenced within 6 s before time T2.

For 802.11a / 5500 MHz:



Date: 12.NOV.2013 02:38:06

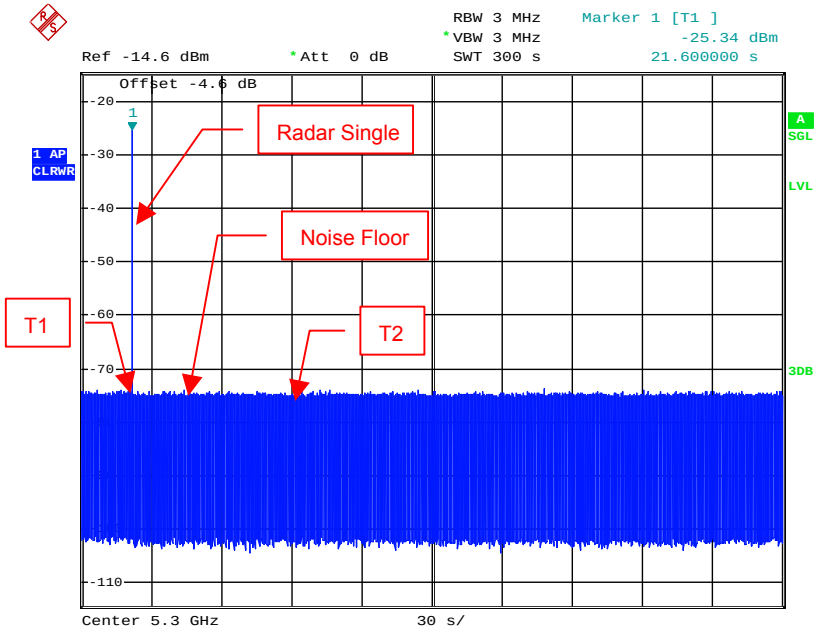
NOTE: T1 denotes the end of power-up time period is 22.00 *th* second. T2 denotes the 91.2 *th* second. The radar burst was commenced within 6 s after time T1



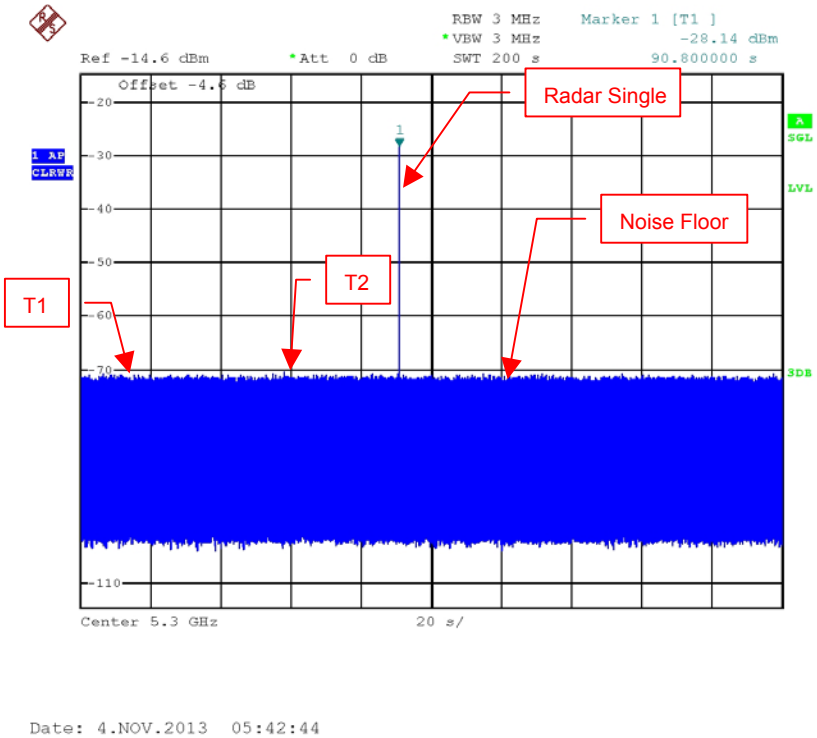
Date: 6.NOV.2013 05:43:13

NOTE: T1 denotes the end of power-up time period is 90.30 *th* second. T2 denotes the 91.2 *th* second. The radar burst was commenced within 6 s before time T2.

For 802.11n 20MHz / 5300 MHz:

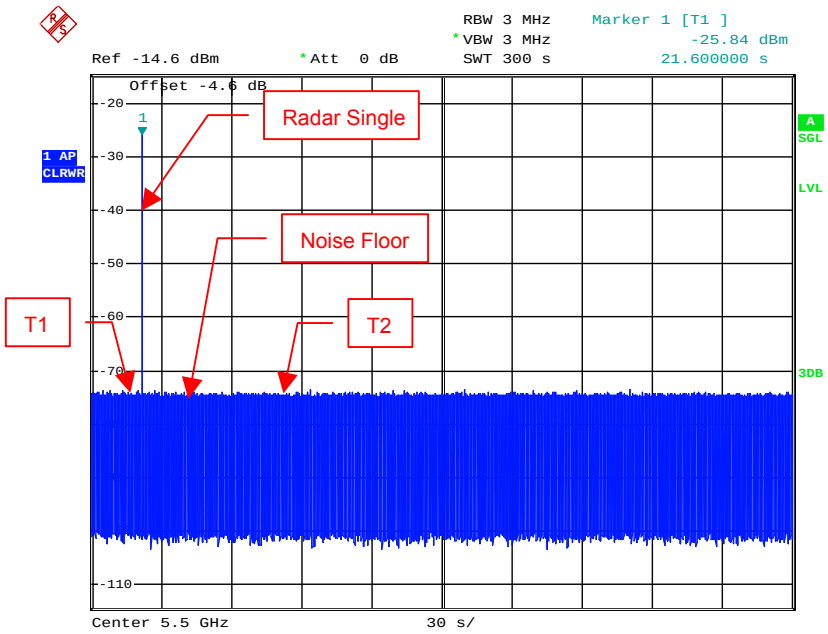


NOTE: T1 denotes the end of power-up time period is 21.60 *th* second. T2 denotes the 91.00 *th* second. The radar burst was commenced within 6 s after time T1

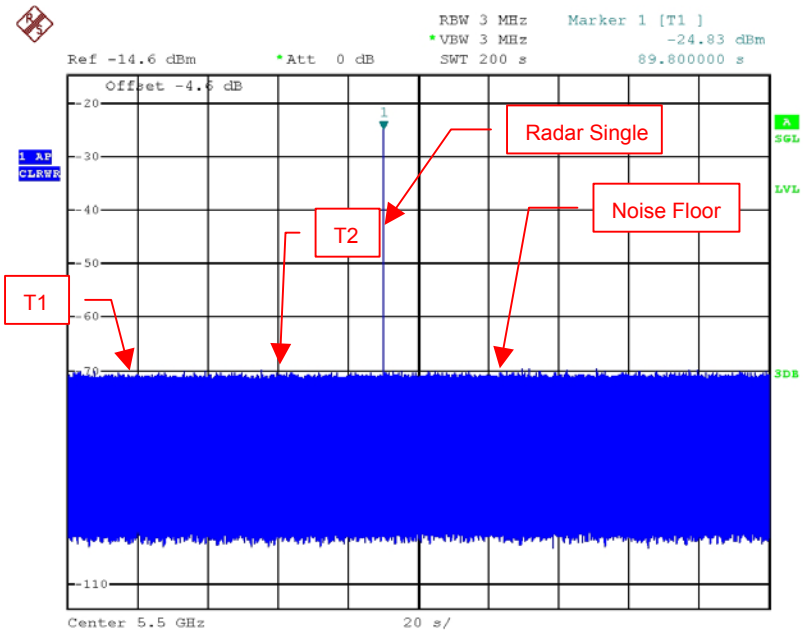


NOTE: T1 denotes the end of power-up time period is 90.80 *th* second. T2 denotes the 91.00 *th* second. The radar burst was commenced within 6 s before time T2.

For 802.11n 20MHz / 5500 MHz:

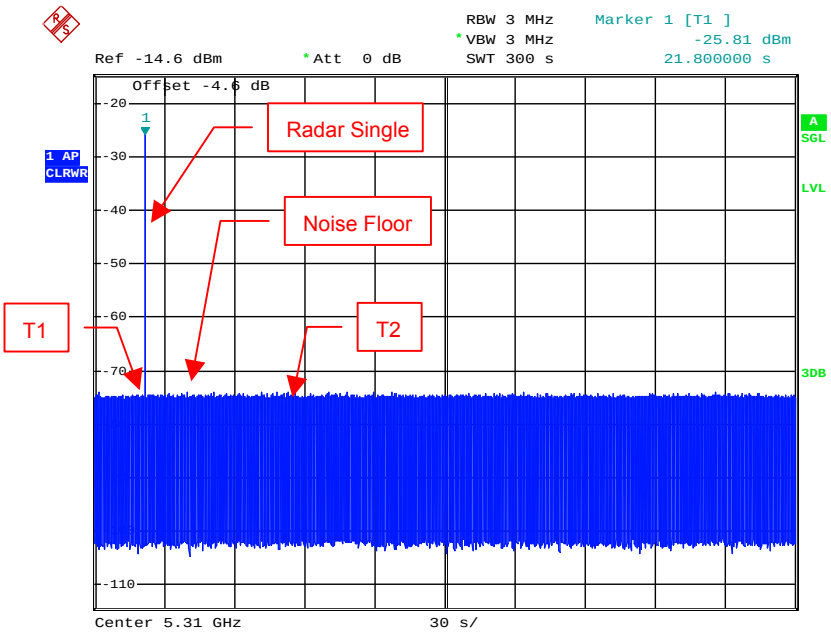


NOTE: T1 denotes the end of power-up time period is 21.60 *th* second. T2 denotes the 91.20 *th* second. The radar burst was commenced within 6 s after time T1



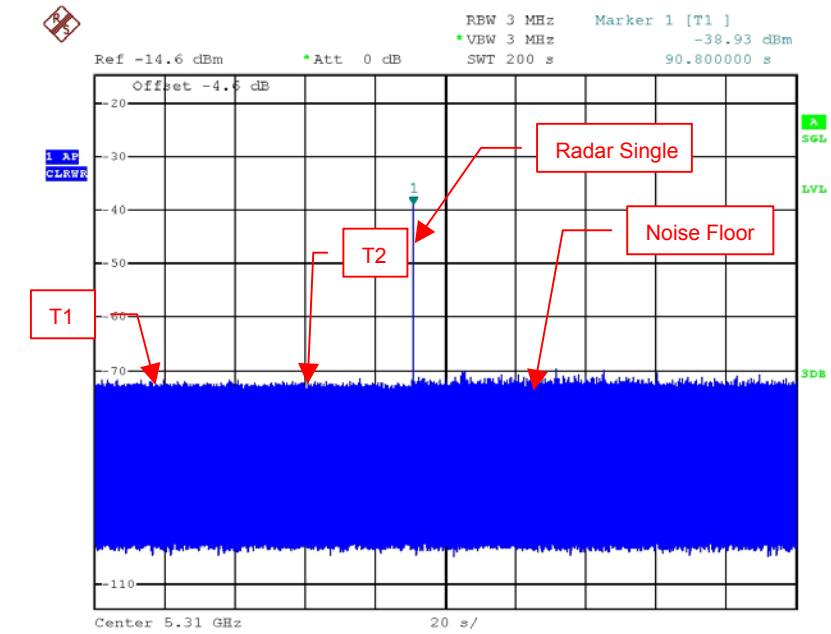
NOTE: T1 denotes the end of power-up time period is 89.80 *th* second. T2 denotes the 91.20 *th* second. The radar burst was commenced within 6 s before time T2.

For 802.11n 40MHz / 5310 MHz:



Date: 12.NOV.2013 03:00:30

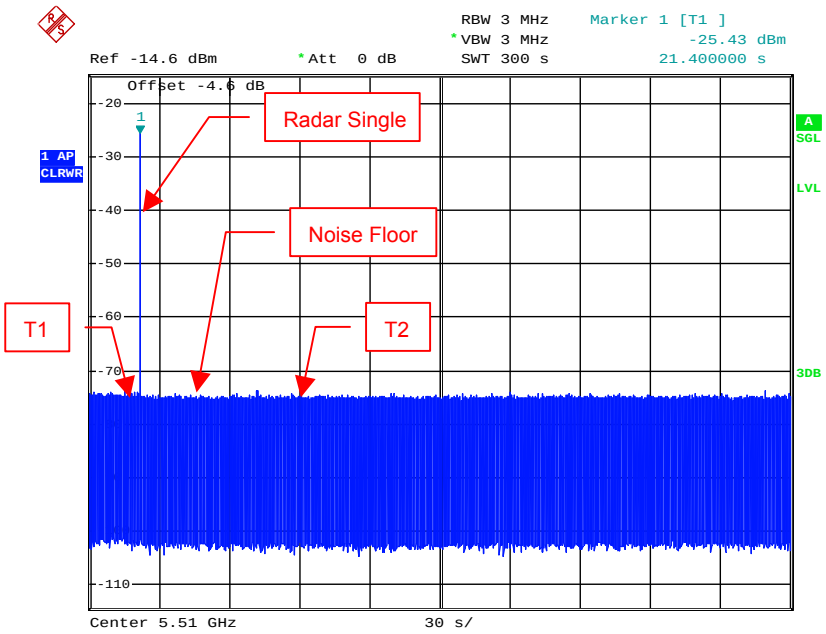
NOTE: T1 denotes the end of power-up time period is 21.80 *th* second. T2 denotes the 91.60 *th* second. The radar burst was commenced within 6 s after time T1



Date: 4.NOV.2013 04:47:38

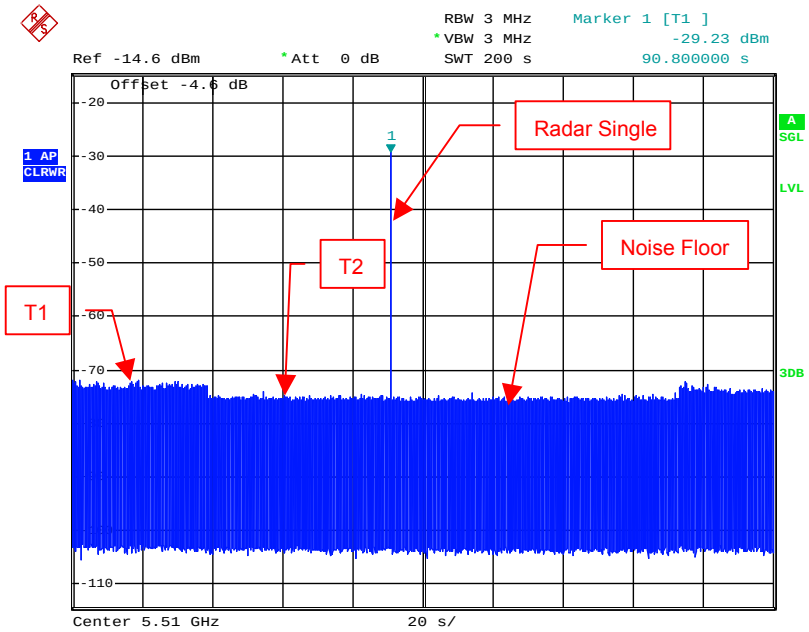
NOTE: T1 denotes the end of power-up time period is 90.80 *th* second. T2 denotes the 91.60 *th* second. The radar burst was commenced within 6 s before time T2.

For 802.11n 40MHz / 5510 MHz:



Date: 12.NOV.2013 02:48:08

NOTE: T1 denotes the end of power-up time period is 21.40 *th* second. T2 denotes the 91.20 *th* second. The radar burst was commenced within 6 s after time T1



Date: 4.NOV.2013 07:31:54

NOTE: T1 denotes the end of power-up time period is 90.80 *th* second. T2 denotes the 91.20 *th* second. The radar burst was commenced within 6 s before time T2.