

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

OF

**Product Name:** Mobile Phone  
**Brand Name:** Sony  
**Type No.:** PM-0850-BV  
**Model Difference:** N/A  
**FCC ID:** PY7-PM0850  
**Report No.:** ER/2014/B0098  
**Issue Date:** Jan. 09, 2015  
**FCC Rule Part:** §15.407  
**Prepared for:** Sony Mobile Communications AB  
 Nya Vattentornet 22188 Lund/Sweden  
**Prepared by:** SGS Taiwan Ltd.  
 Electronics & Communication Laboratory  
 No.134, Wu Kung Road, New Taipei Industrial  
 Park, Wuku District, New Taipei City, Taiwan  
 24803



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## VERIFICATION OF COMPLIANCE

**Applicant:** Sony Mobile Communications AB  
 Nya Vattentorget 22188 Lund/Sweden

**Product Name:** Mobile Phone

**Brand Name:** Sony

**Type No.:** PM-0850-BV

**Model Difference:** N/A

**FCC ID:** PY7-PM0850

**File Number:** ER/2014/B0098

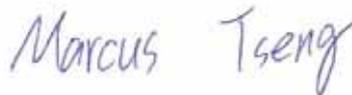
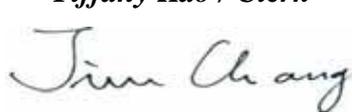
**Date of test:** Nov. 06, 2014 ~ Nov. 28, 2014

**Date of EUT Received:** Nov. 06, 2014

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 & ANSI C63.10: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

The test results of this report relate only to the tested sample identified in this report.

<b>Test By:</b>		<b>Date:</b>	Jan. 09, 2015
	_____ <i>Marcus Tseng / Engineer</i>		_____
<b>Prepared By:</b>		<b>Date:</b>	Jan. 09, 2015
	_____ <i>Tiffany Kao / Clerk</i>		_____
<b>Approved By:</b>		<b>Date:</b>	Jan. 09, 2015
	_____ <i>Jim Chang / Supervisor</i>		_____

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## Revision History

Report Number	Revision	Description	Issue Date
ER/2014/B0098	Rev.00	Initial creation of document	Nov. 28, 2014
ER/2014/B0098	Rev.01	Updated HW, SW, and internal photo	Jan. 09, 2015

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# 1. GENERAL INFORMATION

## 1.1. Product Description

General:

Product Name:	Mobile Phone	
Brand Name:	Sony	
Type No.:	PM-0850-BV	
Model Difference:	N/A	
Data Cable (USB):	Model No.: EC450, Supplier: K-one Type No.: AI-0700, Length: 100 cm	
Simple Hands-Free (SHF-White):	Model No.: MH410c, Supplier: Foster Electric Type No.: AG-1100	
Car Charger:	Model No.: AN400, Supplier: Salcomp Type No.: CAA-0003013	
BT PHF:	Model No.: SBH20, Supplier: Sony Type No.: RD-0010 coupling with Simple Hands Free (Model No.: MH755, Supplier: BALDA, Type No.: AG-0503)	
Hardware Version:	A	
Software Version:	25.0.A.0.33	
Power Supply:	3.8Vdc	
	Battery:	Model No.: LIS1574ERPC, Supplier: Sony Type No.: N/A
	Adapter:	Model No.: EP800, Supplier: Salcomp Type No.: CAA-0002016-US

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Bluetooth\_BR+EDR:

Bluetooth Version:	V4.1 dual mode + HS
Channel number:	79 channels
Modulation type:	Frequency Hopping Spread Spectrum
Transmit Power:	5.38dBm
Frequency Range:	2.402GHz – 2.480GHz
Dwell Time:	<= 0.4s
Antenna Designation:	PIFA Antenna, Gain: 2.52dBi

Bluetooth Low Energy:

Frequency Range:	2402 – 2480MHz
Bluetooth Version:	V4.1 dual mode + HS
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	-1.49dBm (Peak)
Antenna Designation:	PIFA Antenna, Gain: 2.52dBi

NFC:

Operating Frequency	13.56MHz
Transmit Power	< 123dBuV/m at 3m.
Number of Channels	1
Antenna Type	Loop Antenna
Modulation Type	ASK, BPSK

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WLAN 2.4GHz:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology
11b/g	2412-2462	11	b: 18.87dBm g: 22.66dBm	DSSS, OFDM
11n	HT20 2412-2462	11	HT20: 21.09dBm	OFDM
11n	HT40 2422-2452	7	HT40: 22.22dBm	OFDM
Antenna Designation:		PIFA Antenna, Gain: 2.52dBi		
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:		802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 –135Mbps		

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology
11a	5150~5250	4	13.96dBm	OFDM
	5250~5350	4	13.99dBm	
	5470~5725	8	13.96dBm	
	5725~5850	5	13.79dBm	
11n	HT20 5150~5250	4	HT20: 12.99dBm	OFDM
	HT20 5250~5350	4	HT20: 12.95dBm	
	HT20 5470~5725	8	HT20: 12.99dBm	
	HT20 5725~5850	5	HT20: 12.79dBm	
11n	HT40 5150~5250	2	HT40: 11.95dBm	OFDM
	HT40 5250~5350	2	HT40: 11.93dBm	
	HT40 5470~5725	3	HT40: 11.96dBm	
	HT40 5725~5850	2	HT40: 11.98dBm	
Antenna Designation	PIFA Antenna, 5GHz Gain: -0.54dBi (5150MHz-5250MHz) 5GHz Gain: -0.89dBi (5250MHz-5350MHz) 5GHz Gain: -0.34dBi (5470MHz-5725MHz) 5GHz Gain: -0.19dBi (5725MHz-5850MHz)			
Modulation type	64QAM, 16QAM, QPSK, BPSK for OFDM			
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 65.0Mbps 802.11 n_40MHz: 13.5 – 135.0Mbps			

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GSM / WCDMA/ LTE:

Cellular Phone Standards Frequency Range and Power	Operating Frequency		Rated Power
	GSM/GPRS 850, Class 12	824.2 MHz– 848.8 MHz	33dBm
	EDGE 850, Class 12	824.2 MHz– 848.8 MHz	27dBm
	GSM/GPRS 1900, Class 12	1850.2MHz – 1909.8MHz	30dBm
	EDGE 1900, Class 12	1850.2MHz – 1909.8MHz	26dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band II	1852.4MHz – 1907.6MHz	24dBm
	WCDMA/HSUPA/HSDPA /HSPA+ Band V	826.4MHz - 846.6MHz	24dBm
	1.4MHz BW LTE-Band 2	1850.7MHz– 1909.3MHz	23dBm
	3MHz BW LTE-Band 2	1851.5MHz – 1908.5MHz	23dBm
	5MHz BW LTE-Band 2	1852.5MHz – 1907.5MHz	23dBm
	10MHz BW LTE-Band 2	1855.0MHz – 1905.0MHz	23dBm
	15MHz BW LTE-Band 2	1857.5MHz – 1902.5MHz	23dBm
	20MHz BW LTE-Band 2	1860.0MHz – 1900.0MHz	23dBm
	1.4MHz BW LTE-Band 5	824.7MHz – 848.3MHz	23dBm
	3MHz BW LTE-Band 5	825.5MHz – 848.3MHz	23dBm
	5MHz BW LTE-Band 5	826.5MHz – 846.5MHz	23dBm
	10MHz BW LTE-Band 5	829.0MHz – 844.0MHz	23dBm
	5MHz BW LTE-Band 7	2502.5MHz – 2567.5MHz	23dBm
	10MHz BW LTE-Band 7	2505.0MHz –2565.0MHz	23dBm
	15MHz BW LTE-Band 7	2507.5MHz –2562.5MHz	23dBm
15MHz BW LTE-Band 7	2510.0MHz –2560.0MHz	23dBm	

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<p>Type of Emission:</p>	<p>GSM 850: 250KGXW, GSM 1900: 248KGXW          GPRS 850: 250KGXW, GPRS 1900: 247KGXW          EDGE 850: 250KG7W, EDGE 1900: 253KG7W          WCDMA Band II: 4M23F9W,          WCDMA Band V: 4M23F9W          HSDPA Band II: 4M20F9W,          HSDPA Band V: 4M22F9W          HSUPA Band II: 4M21F9W,          HSUPA Band V: 4M22F9W          1.4MHz BW LTE-Band 2 QPSK: 1M10G7D          1.4MHz BW LTE-Band 2 16QAM: 1M10D7W          3MHz BW LTE-Band 2 QPSK: 2M71G7D          3MHz BW LTE-Band 2 16QAM: 2M71D7W          5MHz BW LTE-Band 2 QPSK: 4M55G7D          5MHz BW LTE-Band 2 16QAM: 4M53D7W          10MHz BW LTE-Band 2 QPSK: 8M98G7D          10MHz BW LTE-Band 2 16QAM: 8M99D7W          15MHz BW LTE-Band 2 QPSK: 13M53G7D          15MHz BW LTE-Band 2 16QAM: 13M52D7W          20MHz BW LTE-Band 2 QPSK: 18M00G7D          20MHz BW LTE-Band 2 16QAM: 18M00D7W          1.4MHz BW LTE-Band 5 QPSK: 1M10G7D          1.4MHz BW LTE-Band 5 16QAM: 1M10D7W          3MHz BW LTE-Band 5 QPSK: 2M70G7D          3MHz BW LTE-Band 5 16QAM: 2M71D7W          5MHz BW LTE-Band 5 QPSK: 4M54G7D          5MHz BW LTE-Band 5 16QAM: 4M53D7W          10MHz BW LTE-Band 5 QPSK: 9M03G7D          10MHz BW LTE-Band 5 16QAM: 9M05D7W          5MHz BW LTE-Band 7 QPSK: 4M53G7D          5MHz BW LTE-Band 7 16QAM: 4M53D7W          10MHz BW LTE-Band 7 QPSK: 9M23G7D          10MHz BW LTE-Band 7 16QAM: 9M22D7W          15MHz BW LTE-Band 7 QPSK: 13M93G7D          15MHz BW LTE-Band 7 16QAM: 13M95D7W          20MHz BW LTE-Band 7 QPSK: 18M72G7D          20MHz BW LTE-Band 7 16QAM: 18M70D7W</p>
<p>IMEI:</p>	<p>00440245353087</p>

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IEEE 802.11n Spec:

MCS Index	Nss	Modulation	R	NBPS	NCBPS		NDBPS		Datarate(Mbps)			
					20MHz	40MHz	20MHz	40MHz	80nsGI		400nsGI	
									20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPS	Number of coded bite per single carrier
NCBPS	Number of coded bite per symbol
NDBPS	Number of data bite per symbol
GI	Guard interval

This report applies for client device in order to be compliant DFS regulation.

*Note: The pertinent information with regards to the parameters of the detected Radar Waveforms is not available and accessible to the end user.*

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**2. SUMMARY OF TEST RESULT**

FCC Rules	Description Of Test	Result
§15.407(h) FCC KDB 905462 D02 & D03	TPC and DFS Measurement	Compliant

**3. MEASUREMENT UNCERTAINTY**

Test Items	Uncertainty
TPC and DFS Measurement	+/- 123.36 Hz
Temperature	+/- 0.8 °C
Humidity	+/- 4.7 %
DC / AC Power Source	DC= +/- 1%, AC= +/- 0.2%

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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## 4. TPC and DFS MEASUREMENT

### 4.1. TPC: Standard Applicable

According to §15.407(h)(1), Transmit power control (TPC). 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.

**4.1.1. Result:** N/A, The output power is less than 500mW.

### 4.2. DFS: Standard Applicable

According to §15.407(h)(2) and FCC KDB 905462 D02 , Radar Detection Function of Dynamic Frequency Selection (DFS).

U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection. According to RSS 210 A9.3), Note: For the band 5600-5650 MHz, no operation is permitted.

Until further notice, devices subject to this annex shall not be capable of transmitting in the band 5600-5650 MHz. This restriction is for the protection of Environment Canada weather radars operating in this band. Devices operating in the bands 5250-5350 MHz, 5470-5600 MHz and 5650-5725 MHz band shall comply with the following:

- (a) Devices shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems (see Note below). The minimum DFS radar signal detection threshold is -62 dBm for devices with a maximum e.i.r.p. less than 200 mW, and -64 dBm for devices with a maximum e.i.r.p. of 200 mW to 1 W. The detection threshold power is the received power, averaged over a 1-microsecond reference to a 0 dBi antenna. The DFS process shall provide a uniform spreading of the loading over all the available channels.

Note: Test procedures for demonstrating compliance with the DFS radar detection requirements set out in this section are being evaluated by Industry Canada. As an interim measure, the Department will, until further notice, accept utilization of the DFS test procedures published by the U.S. Federal Communications Commission (FCC)<sup>3</sup> to demonstrate compliance with the requirements of this section.

- (b) Operational requirements: the requirement for channel availability check time applies in the master operational mode. The requirement for channel move time applies in both the master and slave operational modes.

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- (i) In-service monitoring: an LE-LAN device should be able to monitor the operating channel to check that a co-channel radar has not moved or started operation within range of the LE-LAN device. During in-service monitoring, the LE-LAN radar detection function continuously searches for radar signals between normal LE-LAN transmissions.
- (ii) Channel availability check time: the device shall check if there is a radar system already operating on the channel before it initiates a transmission on a channel and when it moves to a channel. The device may start using the channel if no radar signal with a power level greater than the interference threshold value specified in A9.3 (a) above is detected within 60 seconds.
- (iii) Channel move time: after a radar's signal is detected, the device shall cease all transmissions on the operating channel within 10 seconds. Transmission during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. Intermittent management and control signals may also be sent during the remaining time to facilitate vacating the operating channel.
- (iv) Channel closing time: the maximum channel closing time is 260 ms. (v) Non-occupancy period: a channel that has been flagged as containing a radar signal, either by a channel availability check or in-service monitoring, is subject to a 30-minute non-occupancy period where the channel cannot be used by the LE-LAN device. The non-occupancy period starts from the time that the radar signal is detected.

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4.2.1. Limit

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

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

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission time	Yes	Yes
Channel Move time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

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

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**Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring**

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
<p><b>Note 1:</b> This is the level at the input of the receiver assuming a 0 dBi receive antenna.</p> <p><b>Note 2:</b> 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.</p> <p><b>Note 3:</b> EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p>	

**Table 4: DFS Response requirement values**

Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
<p><b>Note 1:</b> <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p><b>Note 2:</b> The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> 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.</p> <p><b>Note 3:</b> During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

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**Table 5: Radar Test Waveforms**

**Short Pulse Radar**

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

**Long Pulse Radar**

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

**Frequency Hopping Radar**

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

*The applicant of this given application confirms that information regarding the parameters of the detected Radar Waveforms is not available to the end user.*

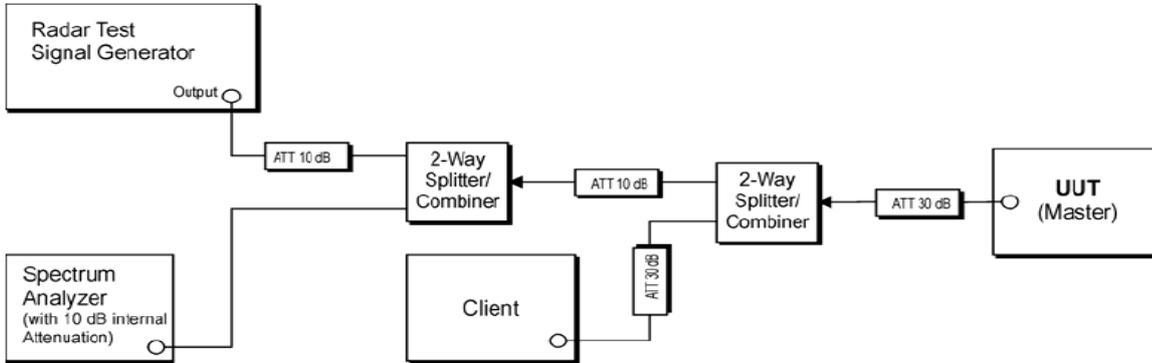
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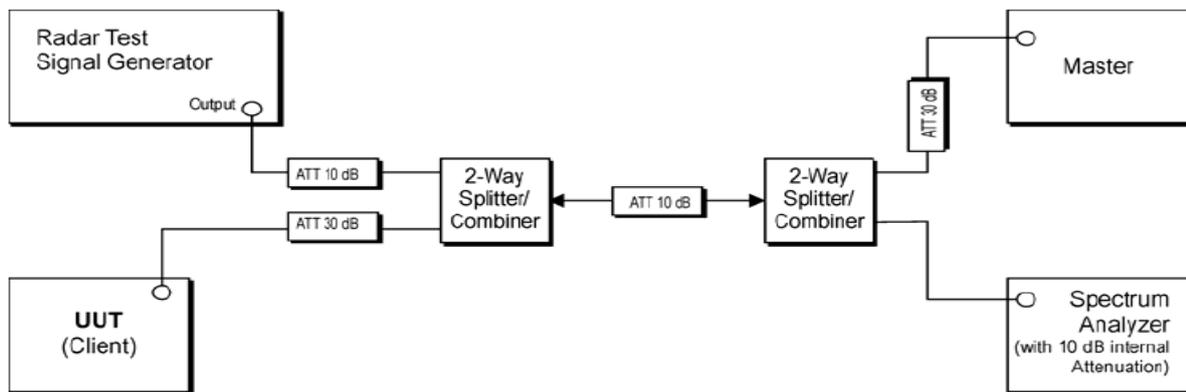
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### 4.2.2. Test Setup

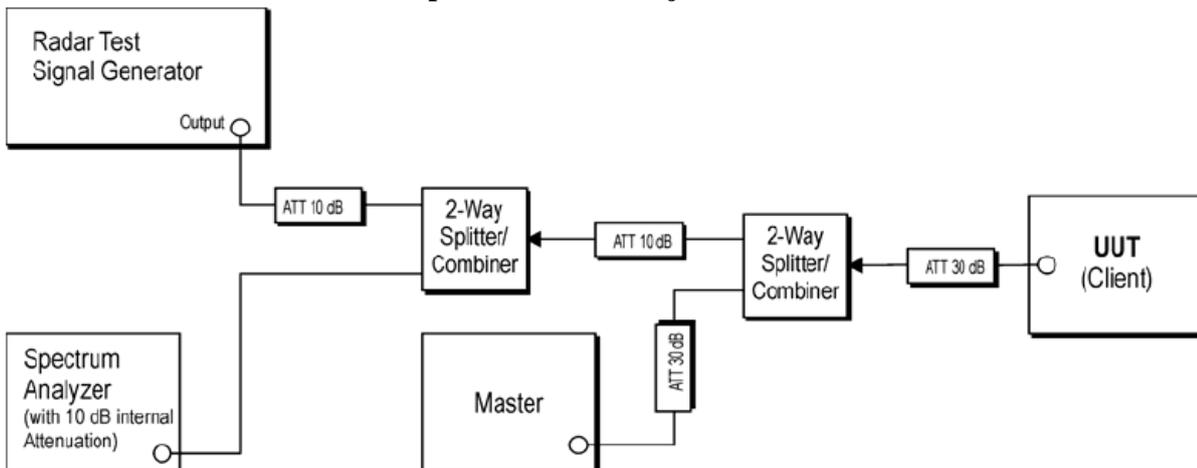
Setup for Master with injection at the Master



Setup for Client with injection at the Master



Setup for Client with injection at the Client



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**4.2.3. Test Equipment Used:**

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Signal Generator	Agilent	E4438C	MY45093613	08/06/2014	08/05/2015
Spectrum Analyzer	Agilent	E4446A	MY51100003	05/19/2014	05/18/2015
DC Block	Mini-Circuits	BLK-18-S+	1	02/27/2014	02/26/2015
Attenuator	Mini-Circuit	BW-S10W2+	002	02/27/2014	02/26/2015
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	02/27/2014	02/26/2015
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	02/27/2014	02/26/2015
Attenuator	Agilent	8495B	3308A22470	02/27/2014	02/26/2015
Attenuator	HP	8494B	2812A170605	02/27/2014	02/26/2015

**4.2.4. Description of EUT:**

EUT operates over the 5250-5350MHz and 5470-5725MHz ranges and EUT is a slave device (client equipment) w/o radar detection and DFS capability. EUT has a gain of -0.34dBi in the 5GHz Band.

EUT has no TPC mechanism implemented with no adjustment of lowest, and highest power, but the level of power emission stays at fixed level.

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 40MHz

WLAN traffic is generated by streaming the mpeg file from the master to slave in full monitor video mode using the media player.

The rated output power of the master unit is >23dBm(EIRP).therefore the required interference threshold level is -62dBm.after correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is -62dBm, and the master device as employed for the applicable DFS test is CISCO router whose FCC ID= LDK102061

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While calibrate the path on antenna port of DFS test equipment (master), measurements equipments (spectrum) is ensured to be 50 Ohms, and therefore verification on antenna gain measurement can be ignored.

Conducted test was performed with appropriate adjustment, and calibration to ensure power from DFS simulator injects to antenna port of DFS test equipment (DFS) is -62dBm

**Message or files that is used for communication between Master and Client:**

IP based system:

For the required channel loading, the full motion, 30 frames per second MPEG video file from <http://ntiacsd.ntia.doc.gov/dfs/> was streamed from a network on a test bench (server of the storage to download the mandatory format of Video file), via the DFS Master device, to the UE (mobile phone).

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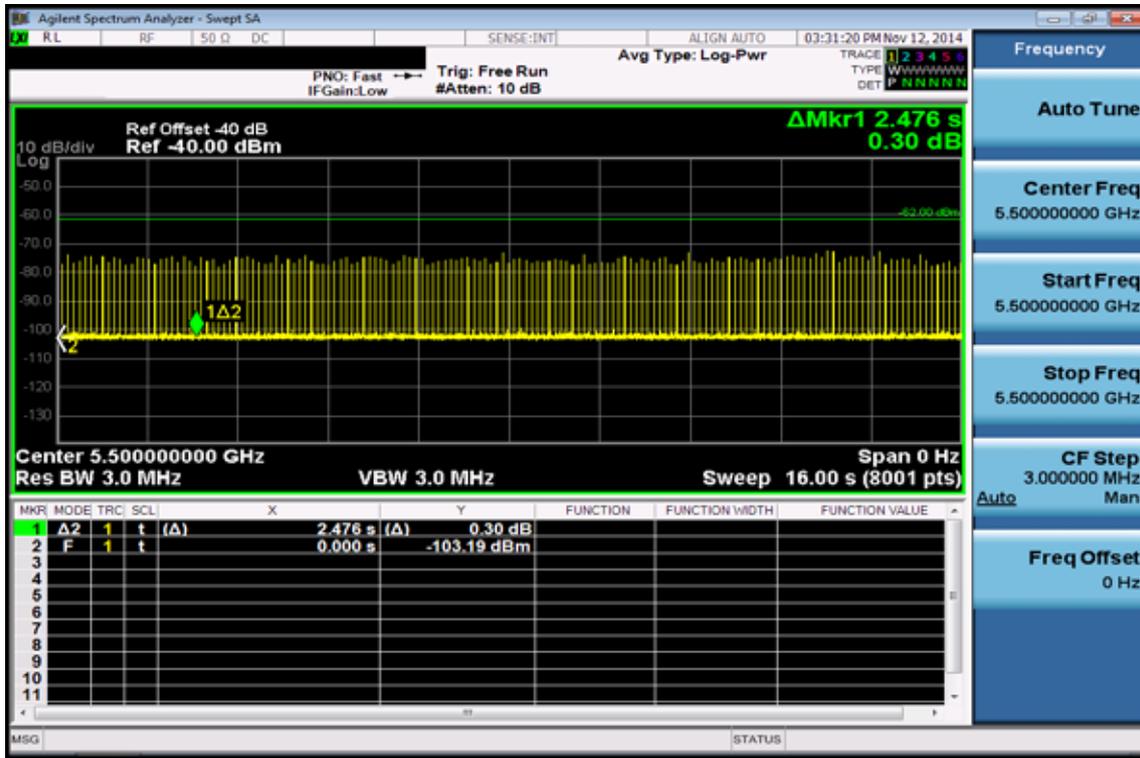
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### 4.2.5. Test results

The time of power-on cycle (2.476s):



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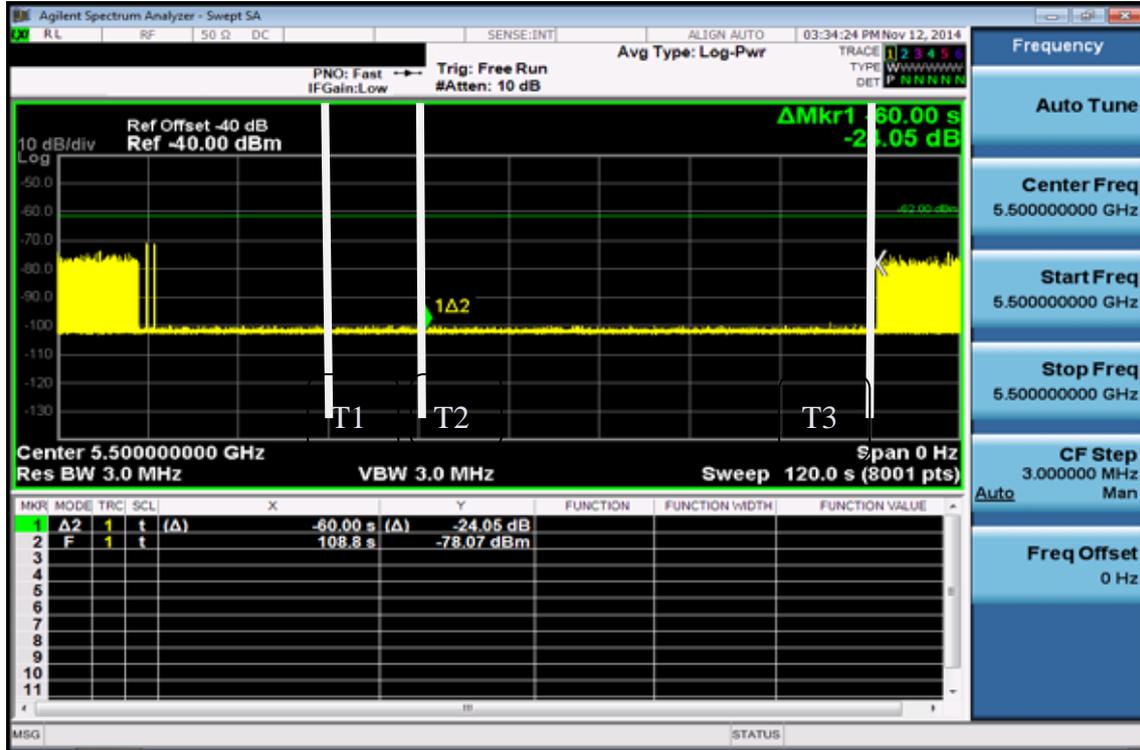
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The time of channel availability check (60s)



Where T1~T2 indicates the time to power up, where T2~T3 represents the channel availability time.

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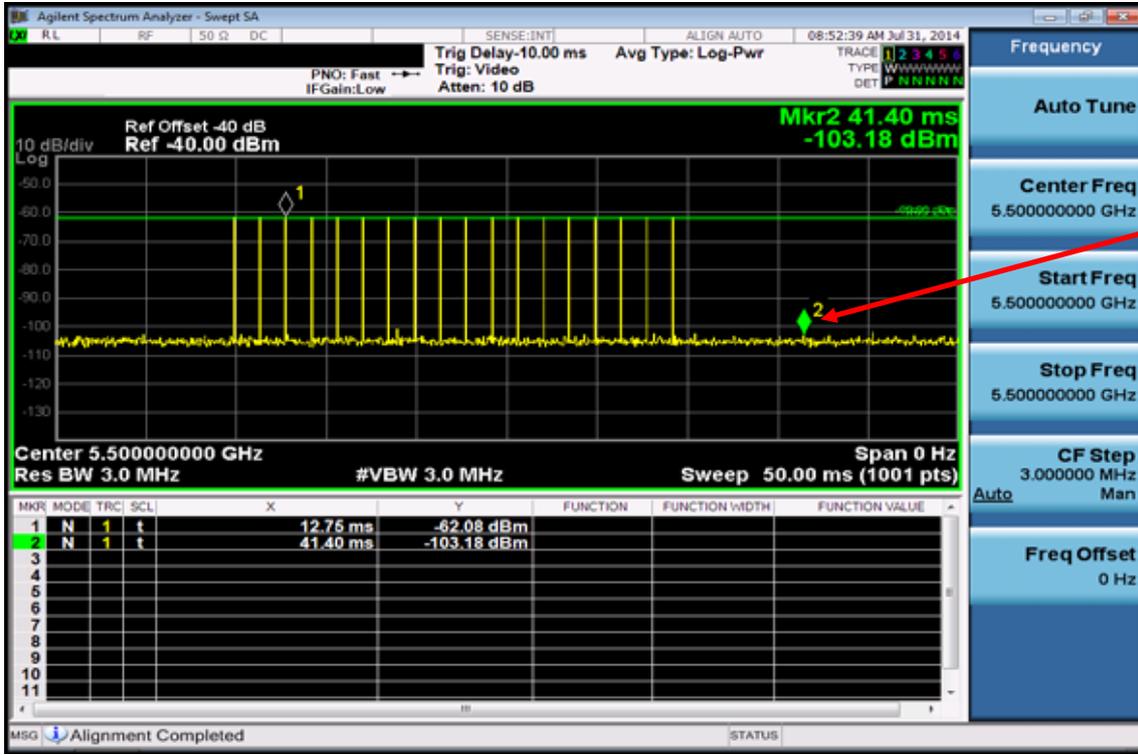
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Calibration plots for each of the required radar waveforms

Radar type 1



Noise Floor

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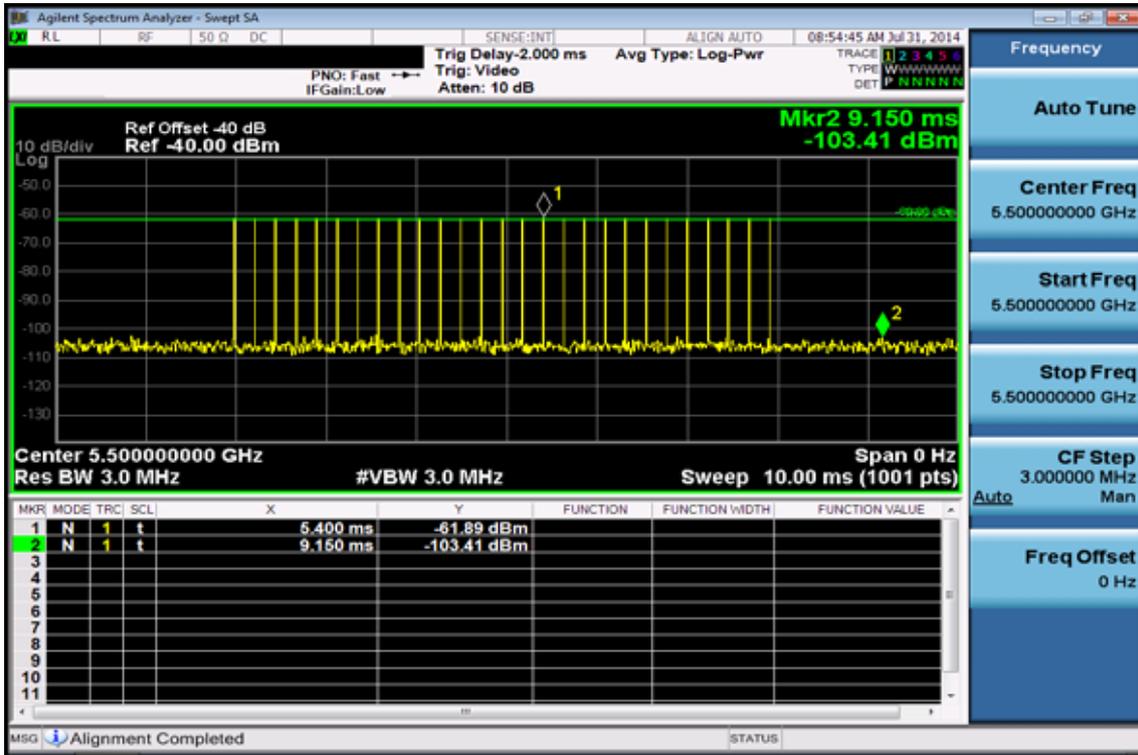
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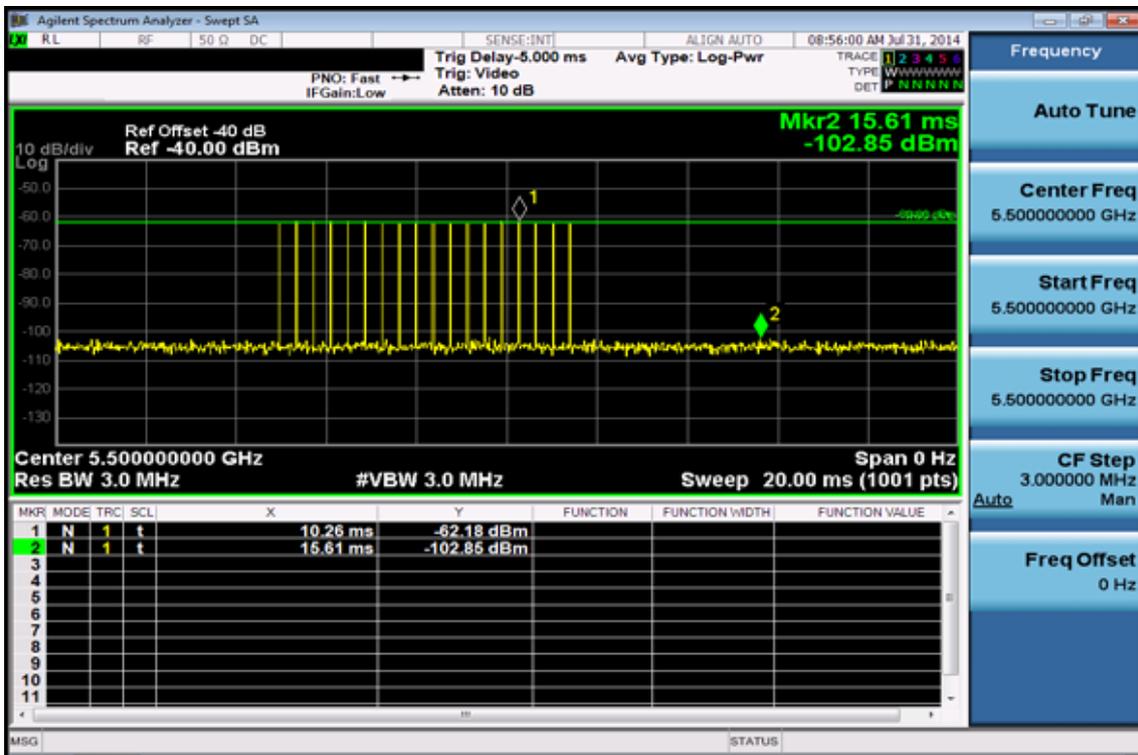
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Radar type 2



Radar type 3



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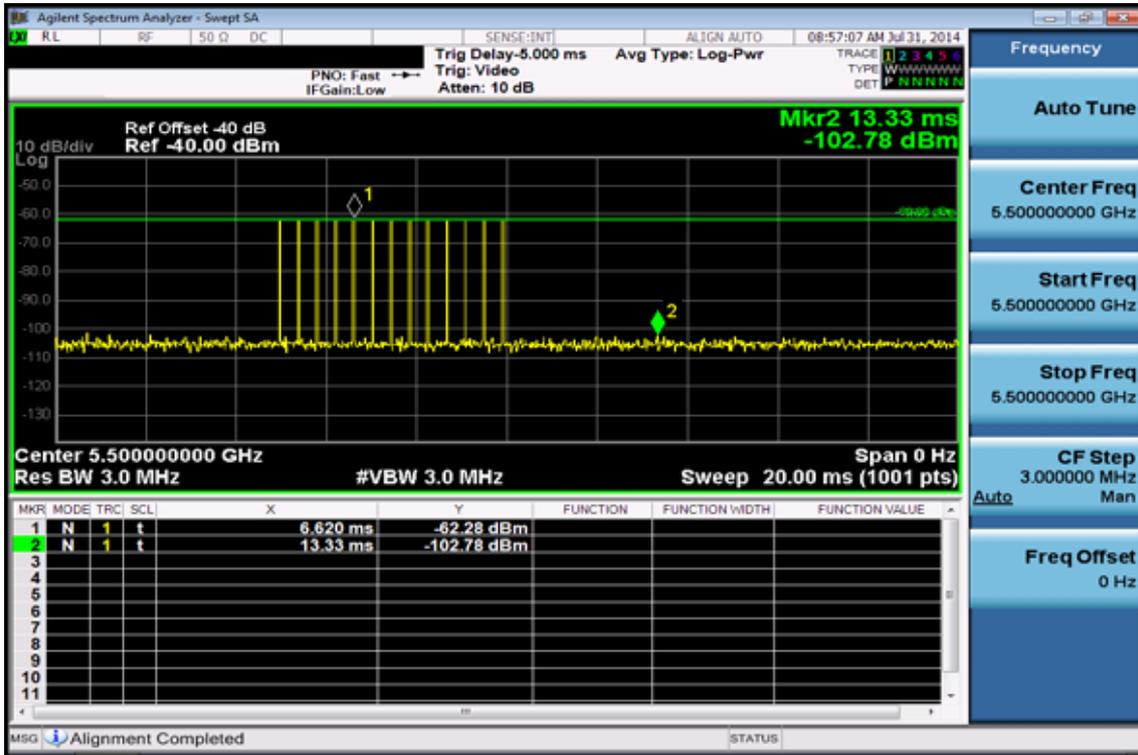
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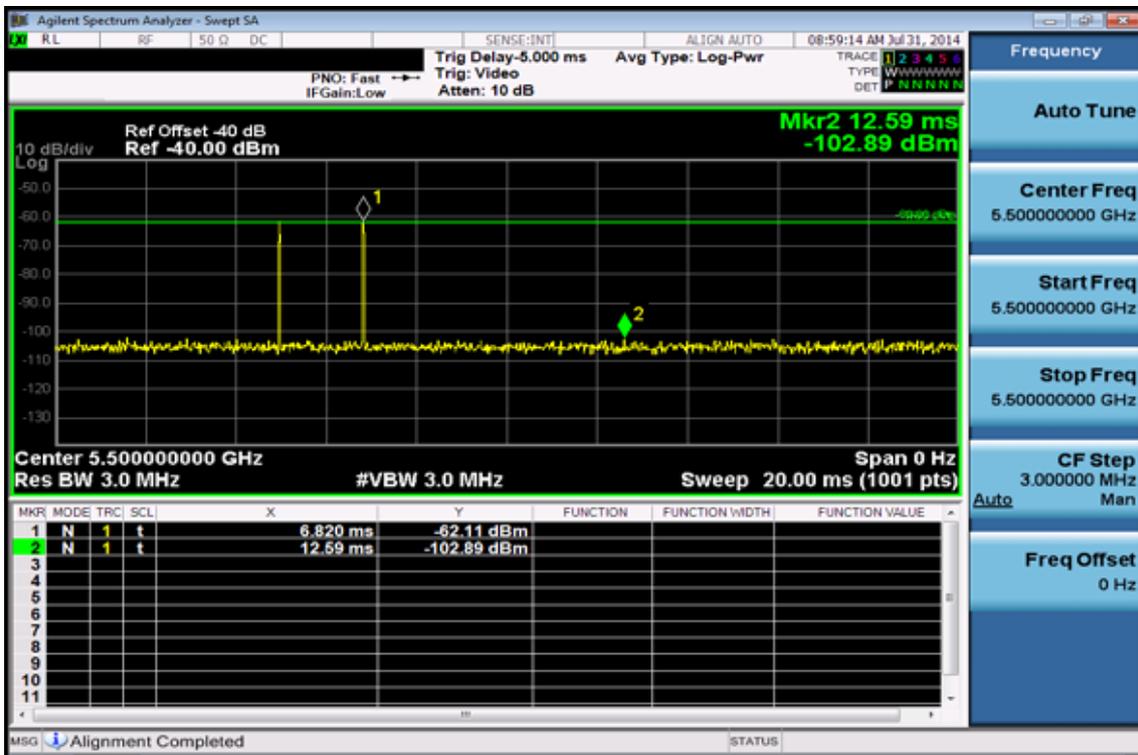
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Radar type 4



Radar type 5



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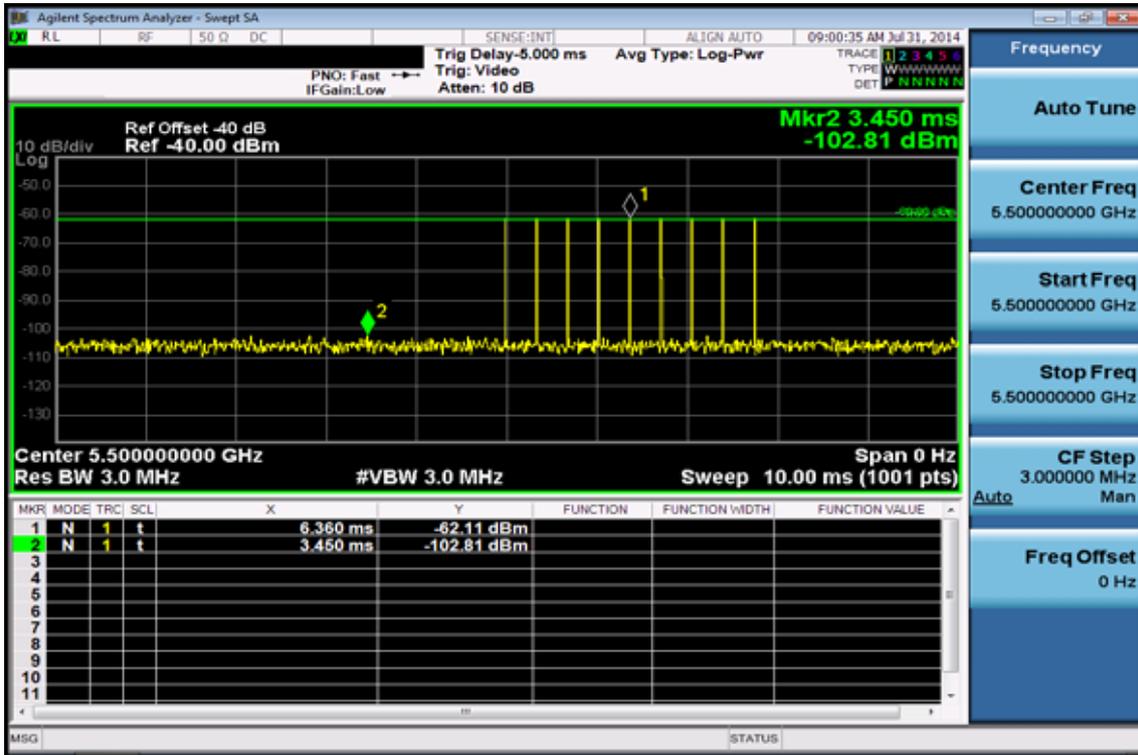
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Radar type 6



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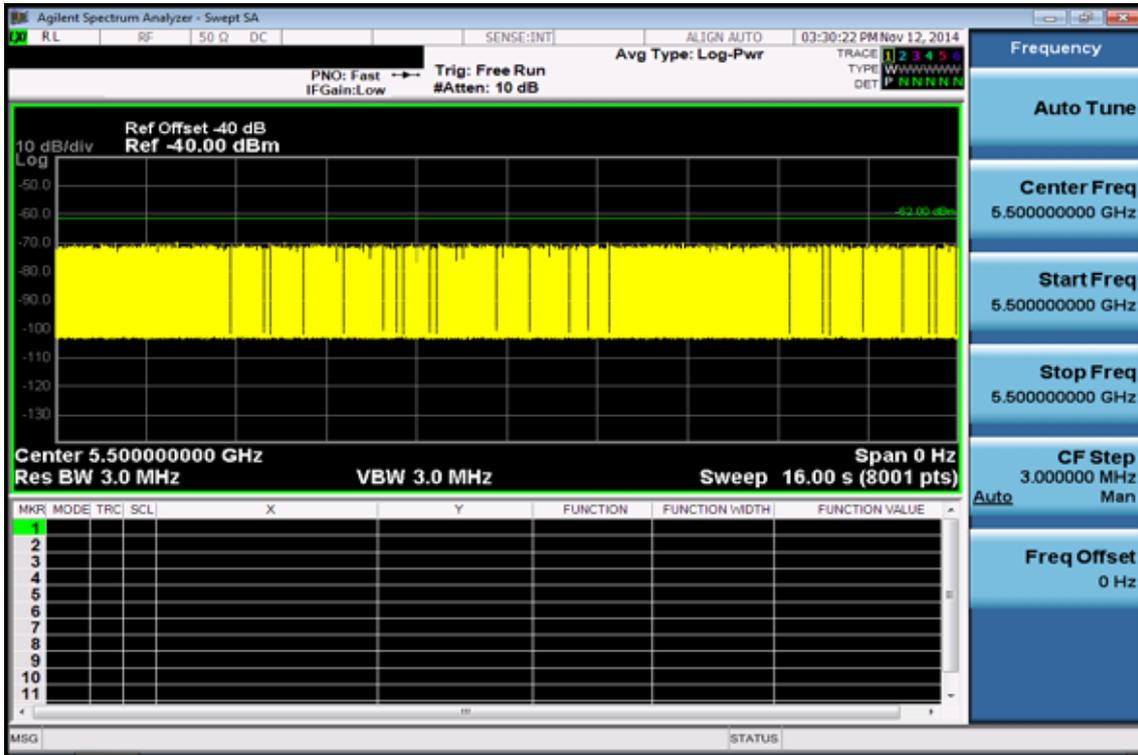
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WLAN traffic



Radar Type 1 Channel Move Time



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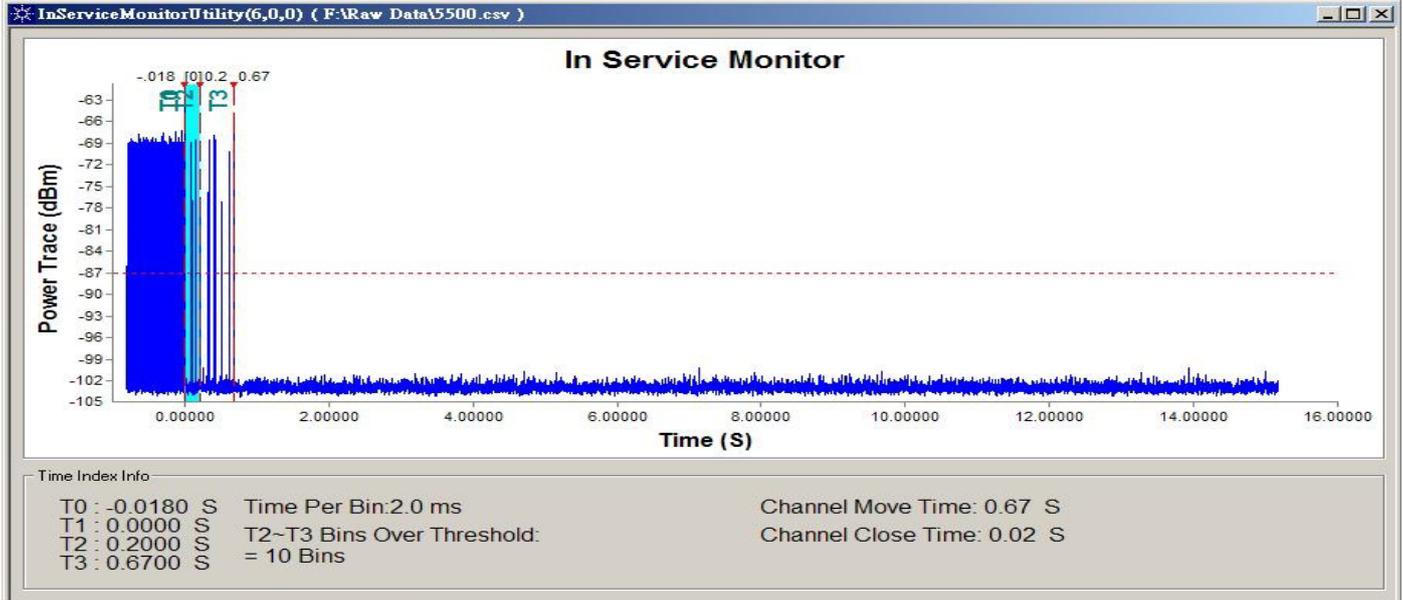
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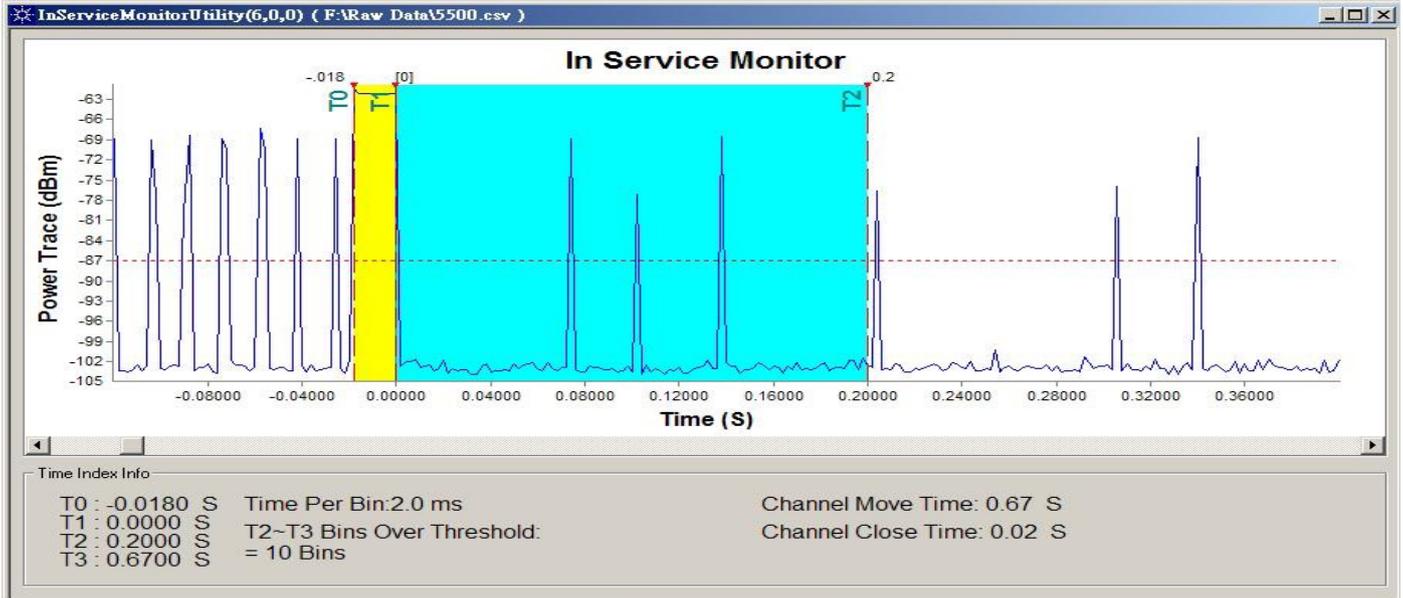
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### Radar Type 1 Channel Closing Transmission Time - 1



### Radar Type 1 Channel Closing Transmission Time - 2

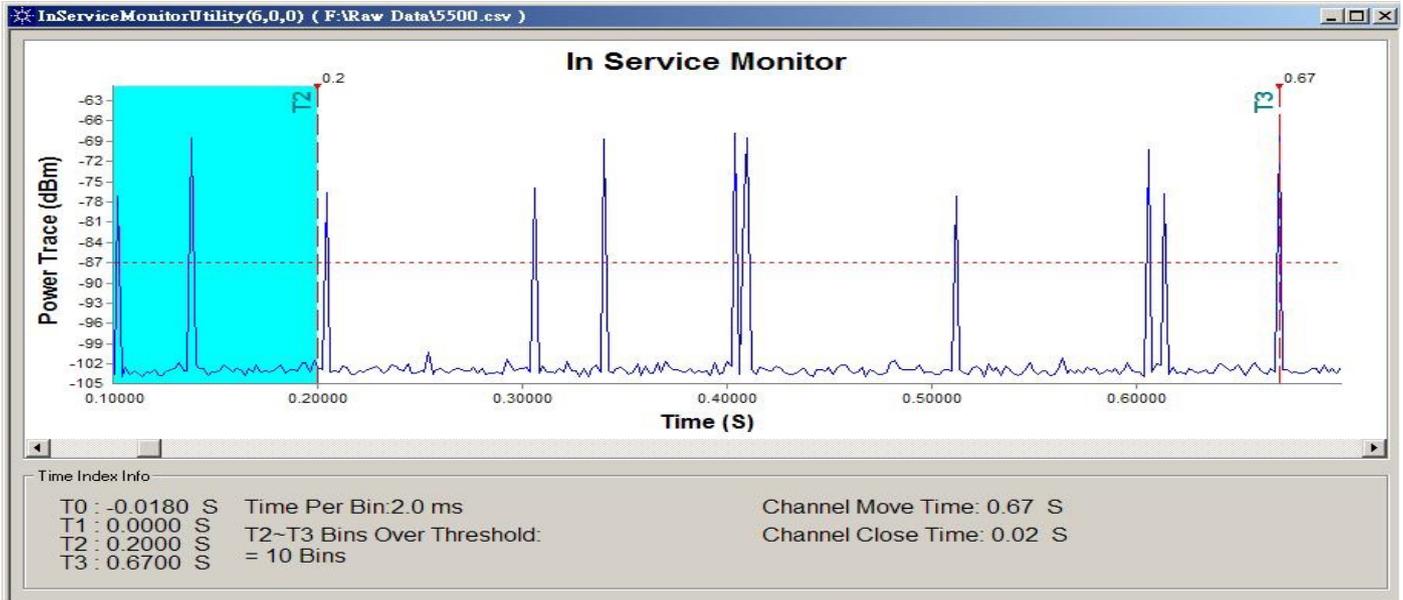


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**Radar Type 1 Channel Closing Transmission Time - 3**



**Verdict:**

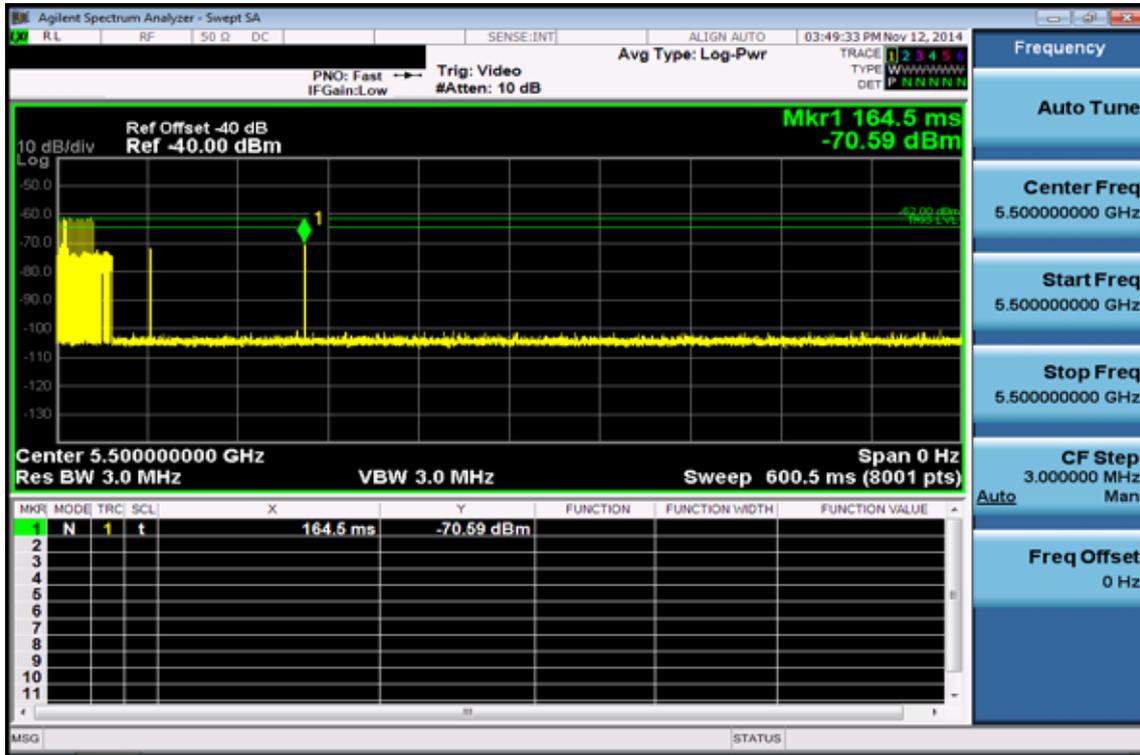
*Time per bin: 2.0ms, Total Bins after 200ms: 7Bins, Total time intermittent control remains: 14.0ms.  
 14.0ms < 60ms in the period of 10s.*

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**Radar Type 1 Channel Closing Transmission Time - 4**



**Verdict:**

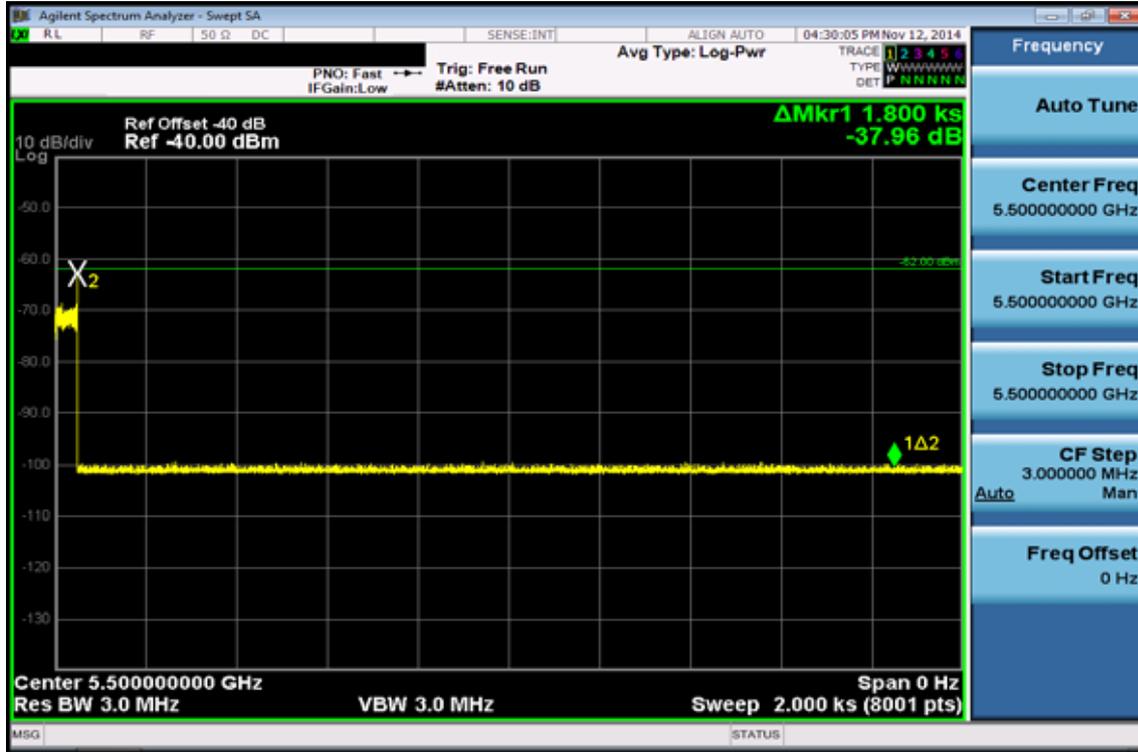
*Note: narrowing the sweep time as the good engineering process for the verification of transmission closing in 200ms*

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**Non-occupancy Period (without radar detection)**



**Verdict:**

*To verify whether channel is unavailable to be operated in 30 minutes.*

$$1.8ks = 1800s = 1800 \text{ s/min} / 60 = 30\text{minute}$$

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