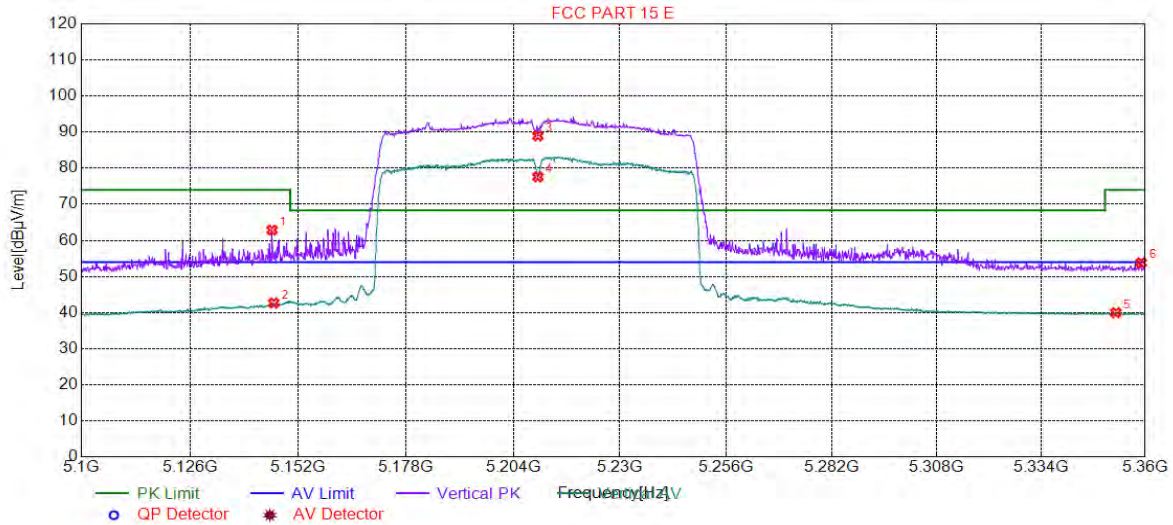


4.10.1.91 11AC80_42 ANT 1_ Vertical

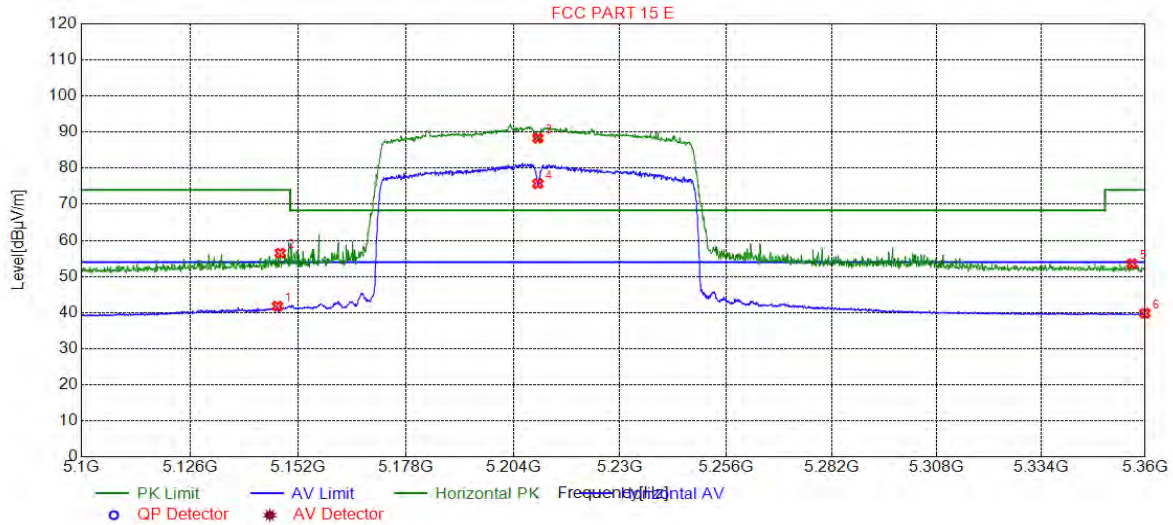


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5145.6528	62.87	15.30	74.00	11.13	150	117	Vertical
2	5146.0430	42.65	15.30	54.00	11.35	150	123	Vertical
3	5210.0000	88.96	15.39	68.30	-20.66	150	82	Vertical
4	5210.0000	77.59	15.39	54.00	-23.59	150	130	Vertical
5	5352.7164	39.97	16.04	54.00	14.03	150	137	Vertical
6	5359.0895	53.83	16.05	74.00	20.17	150	16	Vertical



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4.10.1.92 11AC80_42 ANT 1_ Horizontal

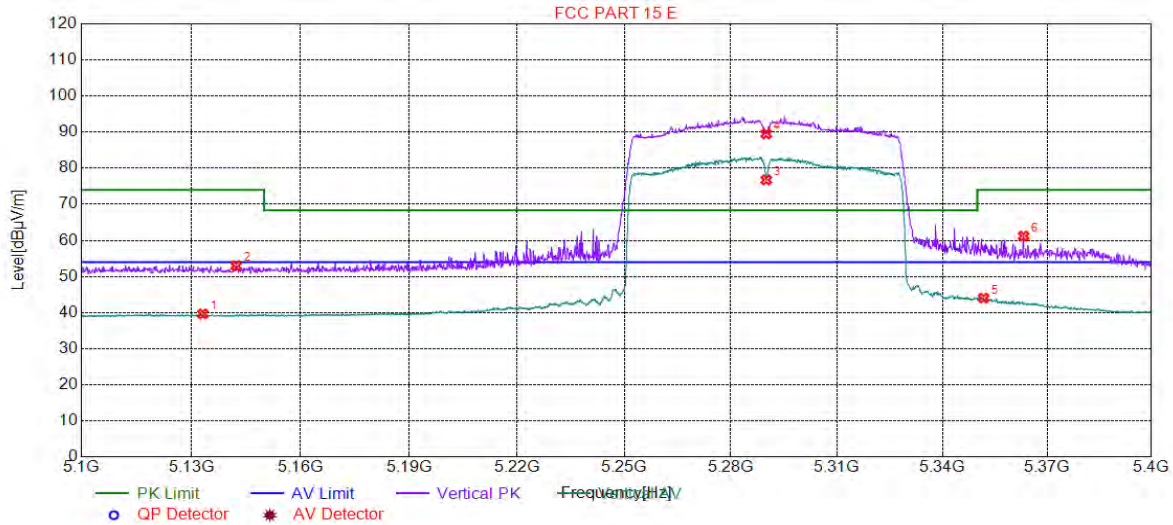


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5146.9535	41.76	15.30	54.00	12.24	150	311	Horizontal
2	5147.6038	56.47	15.30	74.00	17.53	150	311	Horizontal
3	5210.0000	88.34	15.39	68.30	-20.04	150	311	Horizontal
4	5210.0000	75.72	15.39	54.00	-21.72	150	269	Horizontal
5	5356.7484	53.53	16.05	74.00	20.47	150	276	Horizontal
6	5360.0000	39.78	16.06	54.00	14.22	150	304	Horizontal



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4.10.1.93 11AC80_58 ANT 1_ Vertical



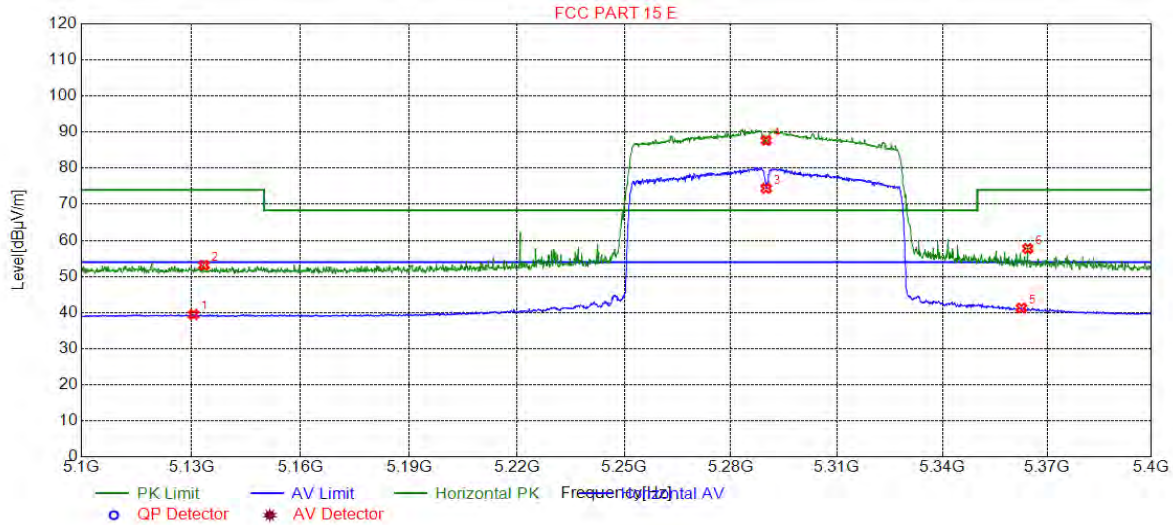
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5133.1666	39.64	15.29	54.00	14.36	150	29	Vertical
2	5142.3212	52.95	15.30	74.00	21.05	150	156	Vertical
3	5290.0000	76.74	15.87	54.00	-22.74	150	136	Vertical
4	5290.0000	89.51	15.87	68.30	-21.21	150	122	Vertical
5	5351.8259	44.01	16.04	54.00	9.99	150	136	Vertical
6	5363.2316	61.18	16.06	74.00	12.82	150	63	Vertical



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4.10.1.94 11AC80_58 ANT 1_ Horizontal

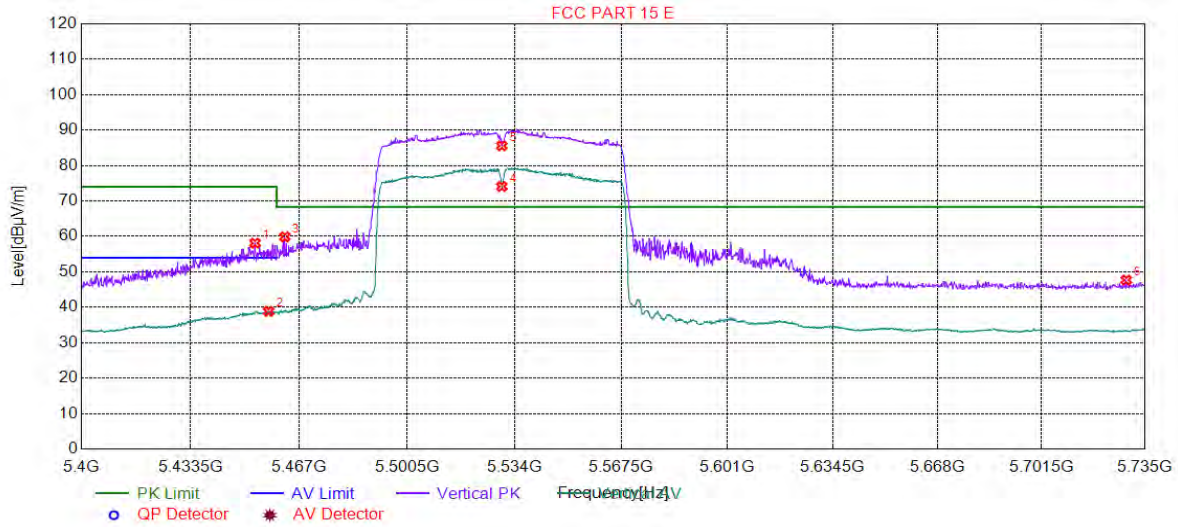


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5130.6153	39.44	15.29	54.00	14.56	150	174	Horizontal
2	5133.4667	53.10	15.29	74.00	20.90	150	57	Horizontal
3	5290.0000	74.40	15.87	54.00	-20.40	150	270	Horizontal
4	5290.0000	87.66	15.87	68.30	-19.36	150	263	Horizontal
5	5362.6313	41.25	16.06	54.00	12.75	150	263	Horizontal
6	5364.4322	57.73	16.07	74.00	16.27	150	92	Horizontal



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4.10.1.95 11AC80_106 ANT 1_ Vertical

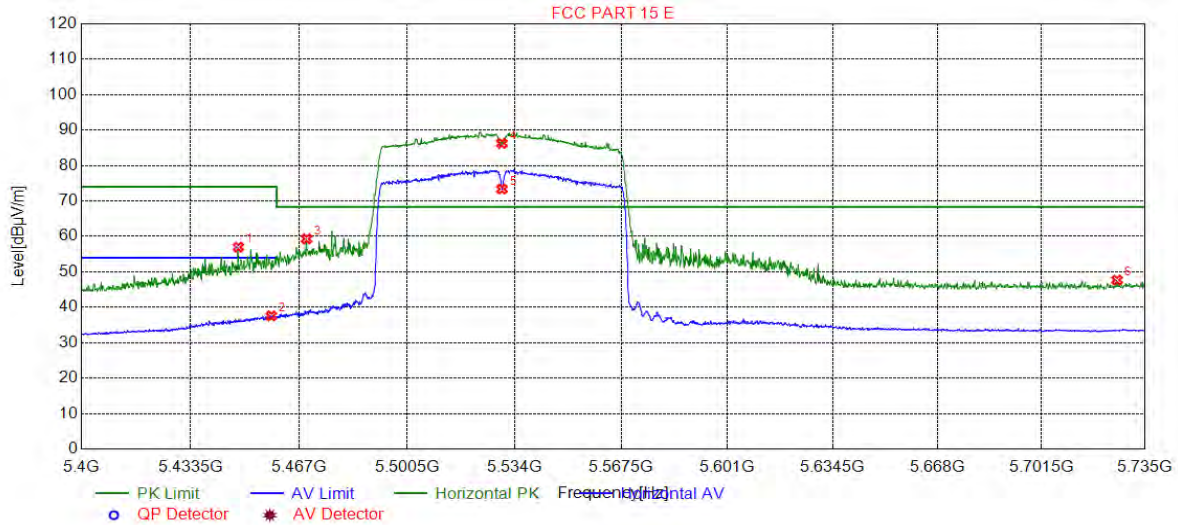


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5453.2916	58.12	16.13	74.00	15.88	150	152	Vertical
2	5457.4812	38.87	16.13	54.00	15.13	150	110	Vertical
3	5462.5088	59.89	16.13	68.30	8.41	150	110	Vertical
4	5530.0000	74.08	16.26	0.00	-74.08	150	82	Vertical
5	5530.0000	85.57	16.26	68.30	-17.27	150	124	Vertical
6	5728.9670	47.68	16.68	68.30	20.62	150	356	Vertical



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4.10.1.96 11AC80_106 ANT 1_ Horizontal

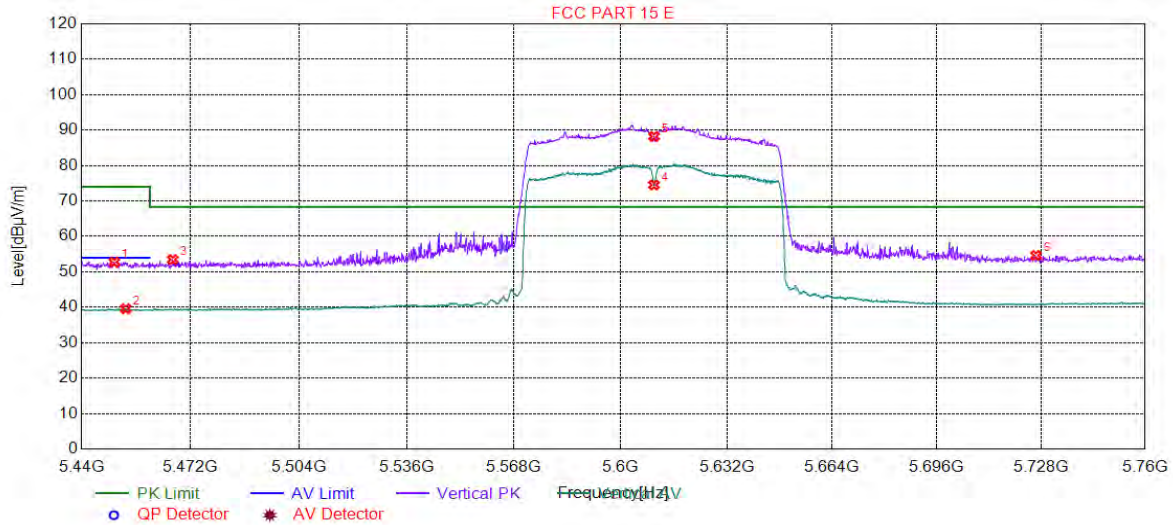


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5448.0965	56.99	16.13	74.00	17.01	150	106	Horizontal
2	5458.3192	37.58	16.13	54.00	16.42	150	113	Horizontal
3	5469.2121	59.32	16.13	68.30	8.98	150	113	Horizontal
4	5530.0000	86.26	16.26	68.30	-17.96	150	120	Horizontal
5	5530.0000	73.37	16.26	0.00	-73.37	150	113	Horizontal
6	5725.9505	47.69	16.67	68.30	20.61	150	72	Horizontal



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4.10.1.97 11AC80_122 ANT 1_ Vertical

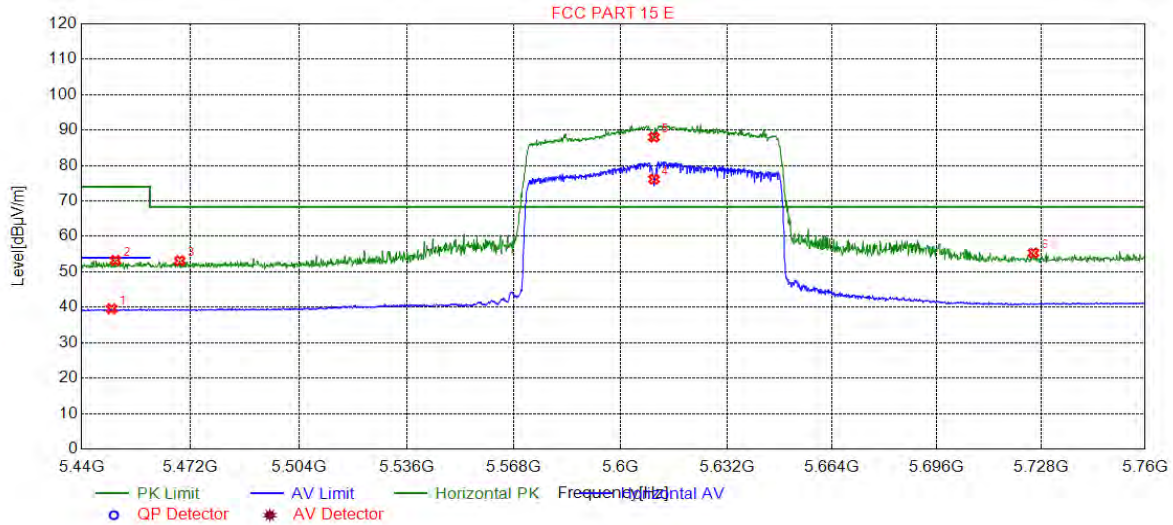


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5449.6048	52.76	16.13	74.00	21.24	150	144	Vertical
2	5452.9665	39.61	16.13	54.00	14.39	150	42	Vertical
3	5466.7334	53.47	16.13	68.30	14.83	150	244	Vertical
4	5610.0000	74.53	16.60	0.00	-74.53	150	90	Vertical
5	5610.0000	88.22	16.60	68.30	-19.92	150	96	Vertical
6	5726.3832	54.65	16.67	68.30	13.65	150	198	Vertical



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4.10.1.98 11AC80_122 ANT 1_ Horizontal

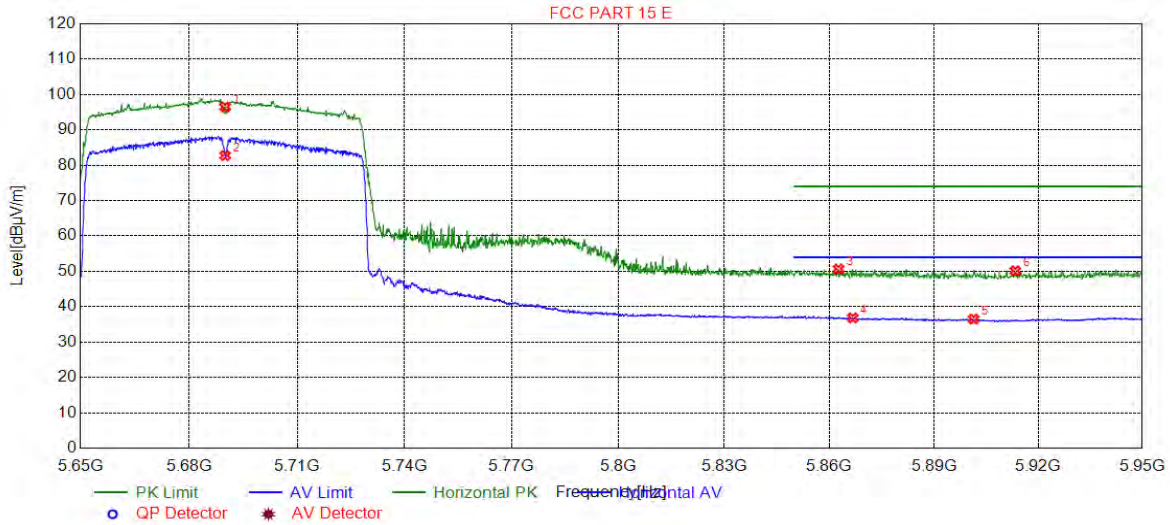


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5448.8044	39.58	16.13	54.00	14.42	150	100	Horizontal
2	5449.9250	53.23	16.13	74.00	20.77	150	31	Horizontal
3	5468.8144	53.15	16.13	68.30	15.15	150	24	Horizontal
4	5610.0000	76.15	16.60	0.00	-76.15	150	269	Horizontal
5	5610.0000	88.01	16.60	68.30	-19.71	150	269	Horizontal
6	5725.5828	55.35	16.67	68.30	12.95	150	317	Horizontal



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4.10.1.99 11AC80_138 ANT 1_ Horizontal

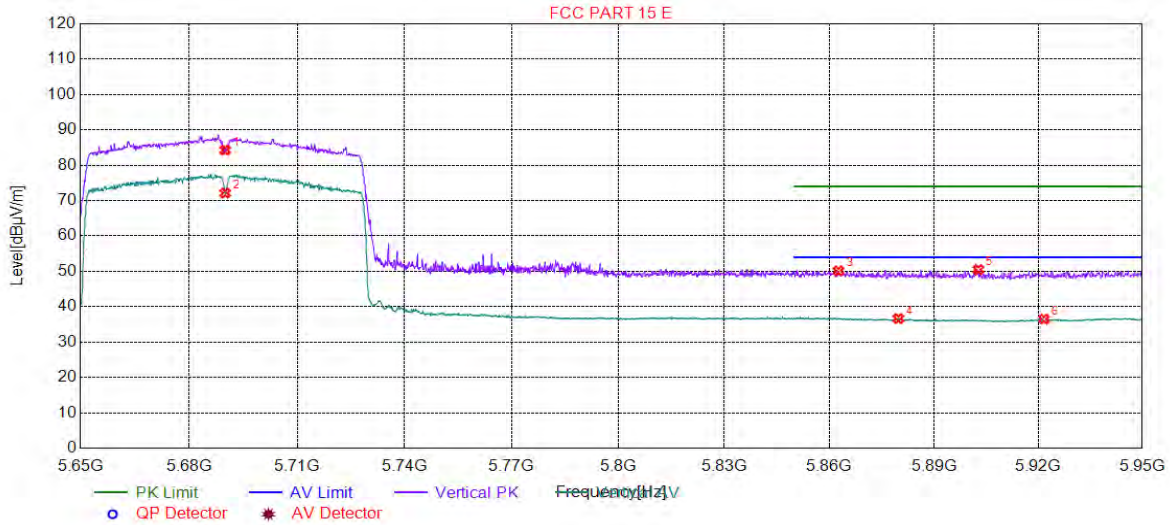


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5690.00	96.49	19.66	0.00	-96.49	150	21	Horizontal
2	5690.00	82.75	19.66	0.00	-82.75	150	21	Horizontal
3	5862.65	50.65	20.33	74.00	23.35	150	8	Horizontal
4	5866.70	36.84	20.31	54.00	17.16	150	21	Horizontal
5	5901.37	36.50	20.19	54.00	17.50	150	35	Horizontal
6	5913.38	50.15	20.30	74.00	23.85	150	222	Horizontal



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4.10.1.100 11AC80_138 ANT 1_ Vertical

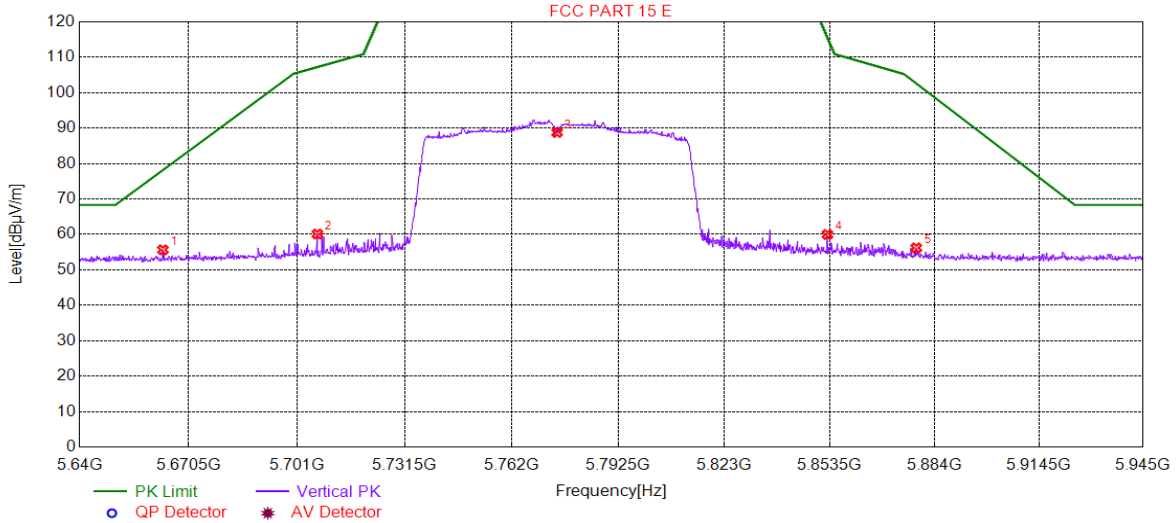


Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5690.00	84.28	19.66	0.00	-84.28	150	192	Vertical
2	5690.00	72.13	19.66	0.00	-72.13	150	192	Vertical
3	5862.65	50.15	20.33	74.00	23.85	150	16	Vertical
4	5879.76	36.65	20.26	54.00	17.35	150	50	Vertical
5	5902.72	50.50	20.20	74.00	23.50	150	260	Vertical
6	5921.63	36.50	20.37	54.00	17.50	150	267	Vertical



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4.10.1.101 11AC80_155 ANT 1_ Vertical



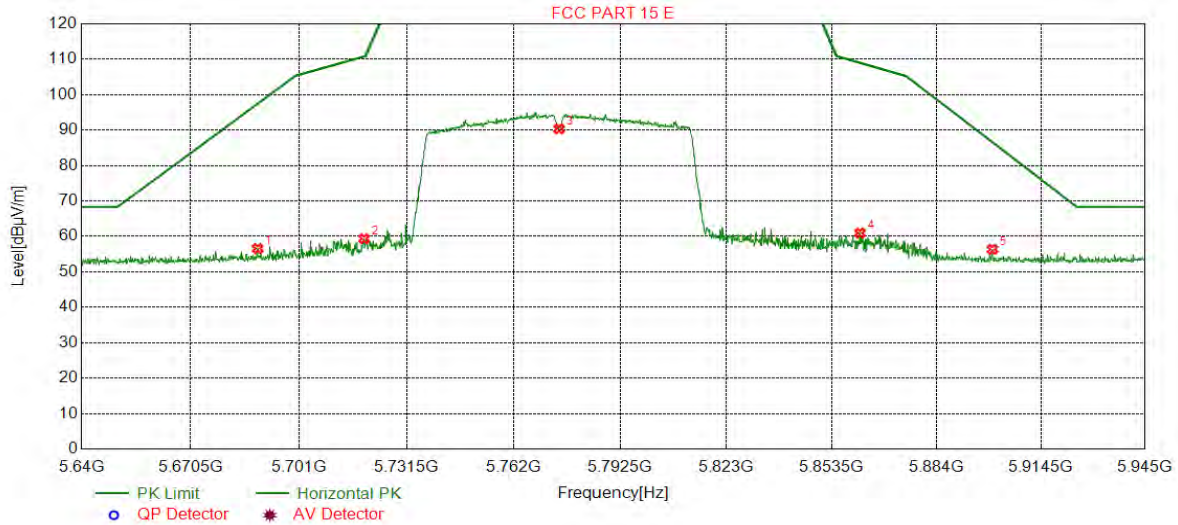
Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5663.3442	55.65	16.59	78.17	22.52	150	98	Vertical
2	5706.8284	60.11	16.60	107.21	47.10	150	116	Vertical
3	5775.0000	88.79	16.85	122.30	33.51	150	148	Vertical
4	5852.8439	59.99	17.05	115.82	55.83	150	162	Vertical
5	5878.6293	56.20	17.10	102.61	46.41	150	130	Vertical



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4.10.1.102 11AC80_155 ANT 1_ Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5689.4347	56.57	16.58	97.48	40.91	150	308	Horizontal
2	5719.4922	59.35	16.65	110.76	51.41	150	312	Horizontal
3	5775.0000	90.37	16.85	122.30	31.93	150	308	Horizontal
4	5861.6933	60.94	17.06	109.03	48.09	150	267	Horizontal
5	5900.2951	56.36	17.14	86.58	30.22	150	267	Horizontal

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

All modes have been tested, but only the worst case data displayed in this report.



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 中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

4.11 Frequencies Stability

4.11.1 Frequency Error vs. Voltage:

Test Conditions	Measured Frequency (MHz)	
	5180	5825
V nom(V)	5180.004921	5825.007955
V max(V)	5180.012335	5825.008627
V min(V)	5180.009081	5825.006371
Max. Deviation Frequency	0.012335	0.008627
Max. Frequency Error (ppm)	2.381351	1.480957

4.11.2 Frequency Error vs. Temperature:

Test Conditions(°C)	Measured Frequency (MHz)	
	5180	5825
-5	5180.006314	5825.009856
5	5180.007751	5825.002400
15	5180.007733	5825.010544
25	5180.013151	5825.015275
35	5180.012867	5825.022038
45	5180.011759	5825.002795
50	5180.003918	5824.998131
Max. Deviation Frequency	0.013151	0.022038
Max. Frequency Error (ppm)	2.538894	3.783428



4.12 Dynamic Frequency Selection

4.12.1 DFS Overview

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

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



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4.12.2 DFS Detection Thresholds

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

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>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.</p> <p>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.</p> <p>Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p>	

4.12.3 Response Requirements

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>Note 1: <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>Note 2: 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>Note 3: 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>	

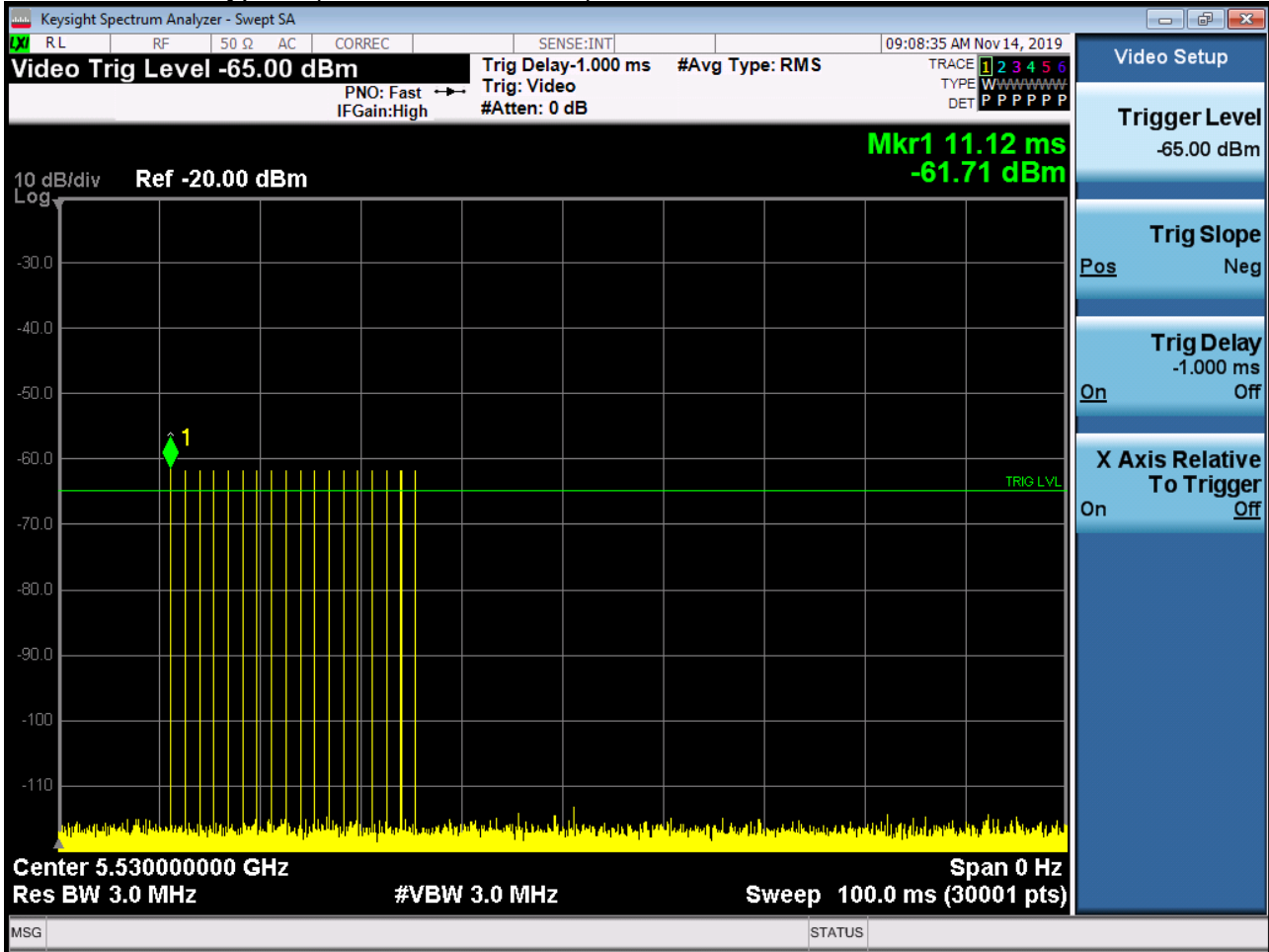


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4.12.4 Test plots
4.12.4.1 Radar Waveform Calibration Result
Radar Type 0 (80MHz / 5530MHz)



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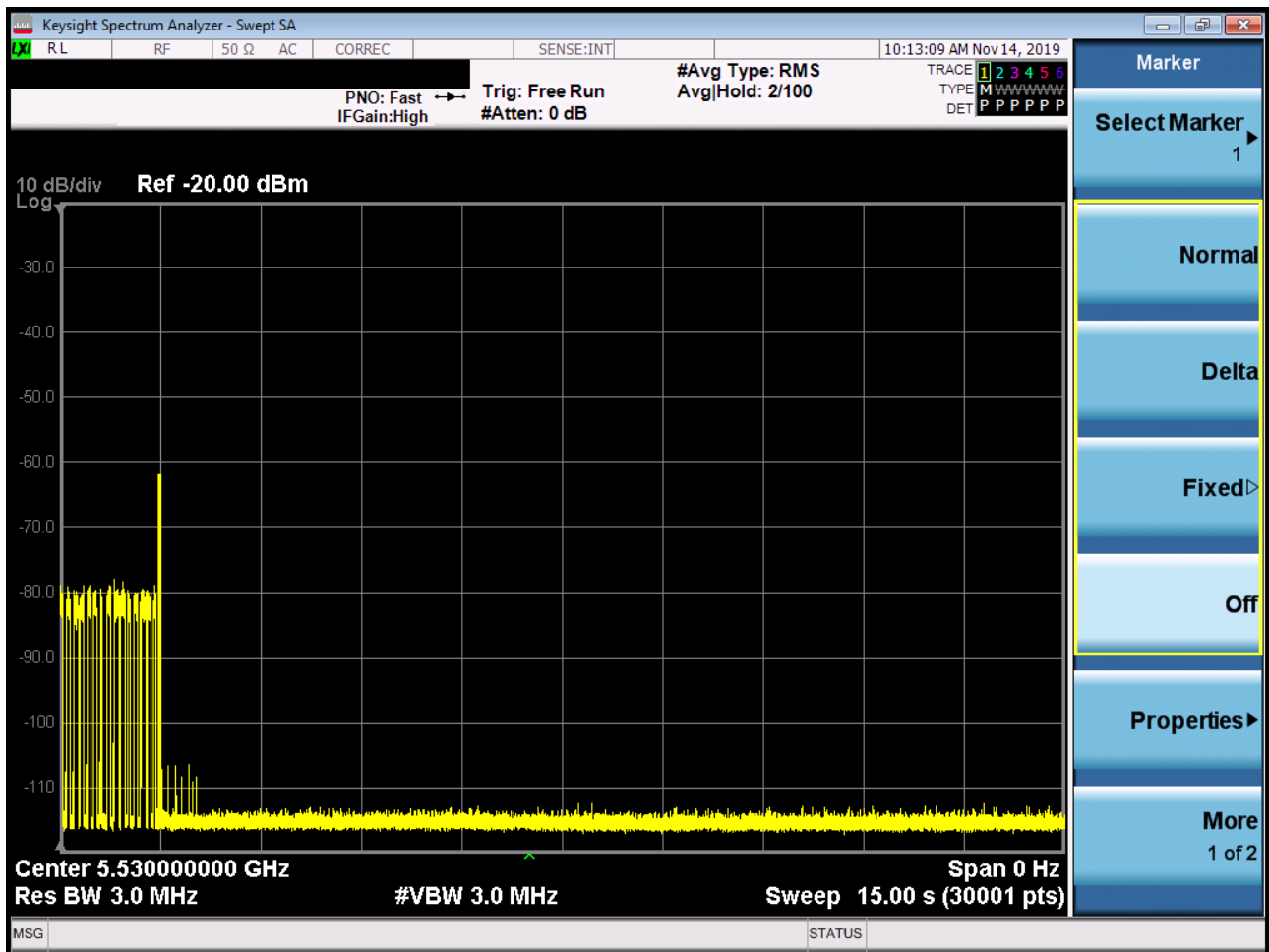


4.12.5 Test Data:

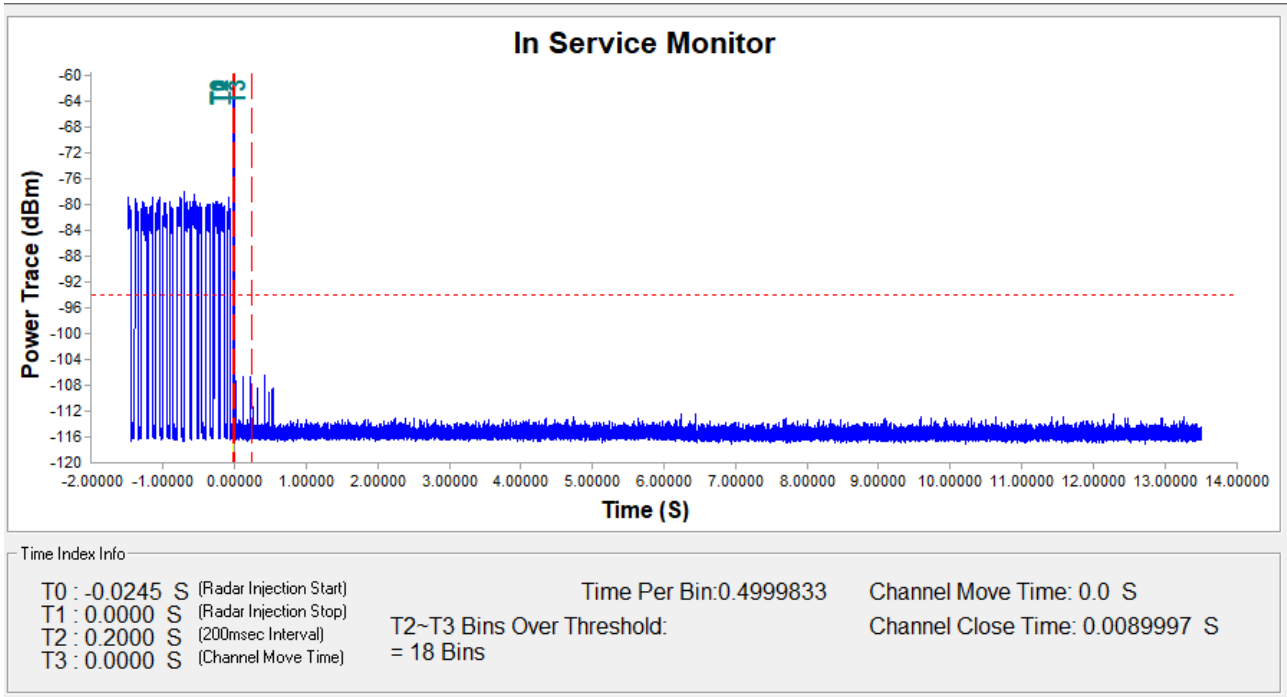
BW/Channel	Test Item	Test Result	Limit	Results
80MHz / 5530MHz	Channel Move Time	0s	<10s	Pass
	Channel Closing Transmission Time	9ms	<60ms	Pass

4.12.5.1 Test plots

4.12.5.1.1 Test Bandwidth/Channel= 80MHz / 5530MHz

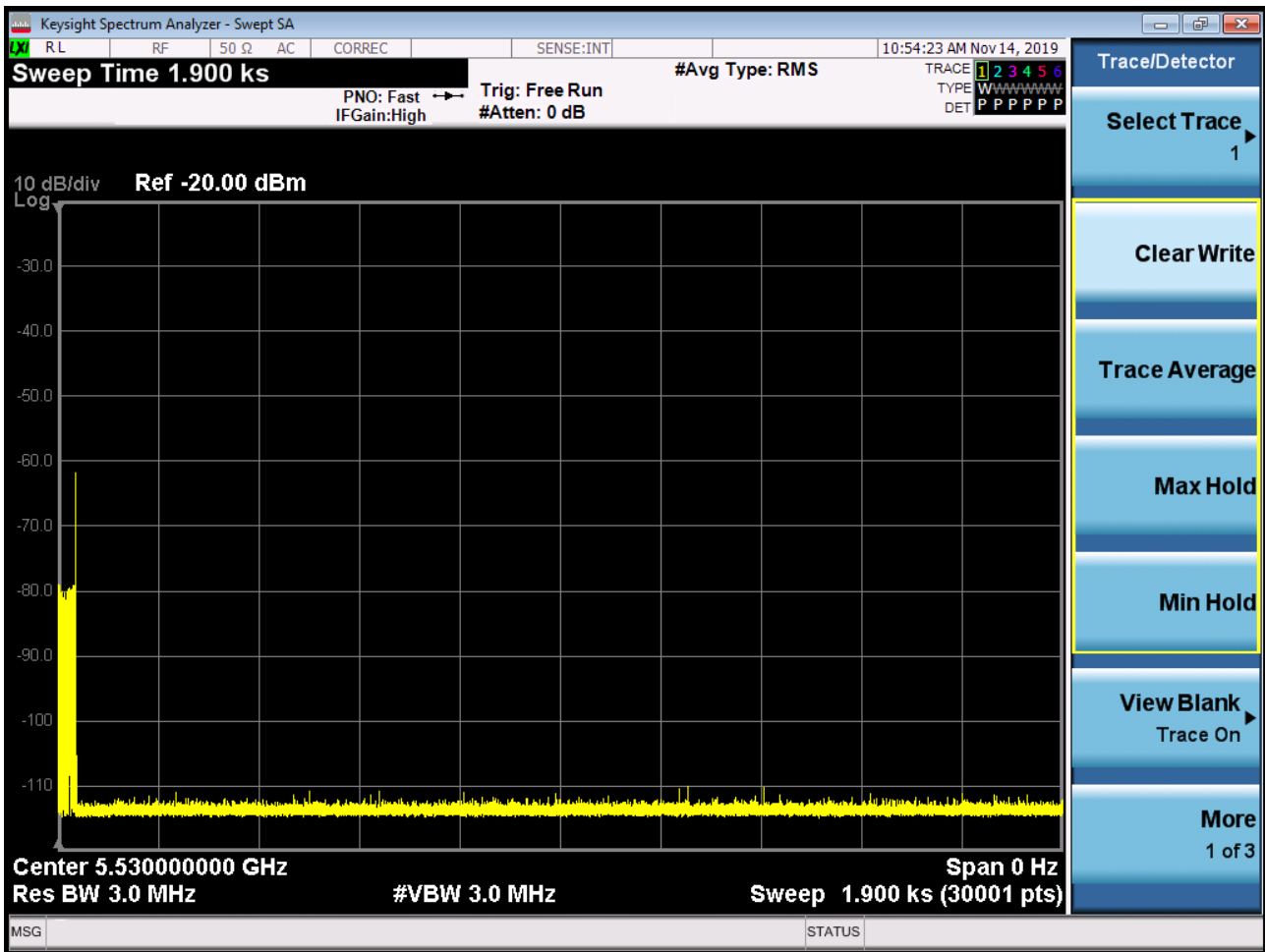


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5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.75dB
2	RF power density, conducted	±2.84dB
3	Spurious emissions, conducted	±0.75dB
4	Radiated Spurious emission test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-25GHz)
5	Conduct emission test	±3.12 dB(9KHz- 30MHz)
6	Temperature test	±1°C
7	Humidity test	±3%
8	DC and low frequency voltages	±0.5%



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6 Equipment List

Conducted Emission					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2017/5/10	2020/5/9
LISN	Rohde & Schwarz	ENV216	SEM007-01	2019/7/14	2020/7/14
LISN	ETS-LINDGREN	Feb-16	SEM007-02	2019/3/2	2020/3/1
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2019/6/12	2020/6/11
8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2019/2/11	2020/2/10
4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2019/2/11	2020/2/10
2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2019/2/11	2020/2/10
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2019/3/2	2020/3/1
RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2019/7/14	2020/7/14
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2019/3/2	2020/3/1
Coaxial Cable	SGS	N/A	SEM031-01	2019/6/12	2020/6/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019/7/14	2020/7/14
Temperature Chamber	GIANT FORCE	ICT-150-40-CP-AR	W027-03	2018/11/27	2019/11/27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019/7/14	2020/7/14
Master Device	Linksys pte.Ltd	WRT32X	FCC ID:Q87-WRT3200ACM IC ID:3839A-WRT3200ACM	N/A	N/A
RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018/3/31	2021/3/30
EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2019/3/2	2020/3/1
Trilog-Broadband Antenna (25M-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2019/6/12	2020/6/11
Pre-amplifier (9k-1GHz)	Sonoma Instrument Co	310N	SEM005-03	2019/4/12	2020/4/11
Loop Antenna (15-40MHz)	ETS-Lindgren	6502	SEM003-08	2017/8/22	2020/8/21
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2019/6/12	2020/6/11
RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018/3/13	2021/3/12
Spectrum Analyzer (20Hz-43GHz)	Rohde & Schwarz	FSU43	SEM004-08	2019/3/2	2020/3/1
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017/6/27	2020/6/26
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018/4/13	2021/4/12
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017/10/17	2020/10/16
Amplifier(0.1-1300MHz)	HP	8447D	SEM005-02	2019/7/14	2020/7/14
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2019/7/14	2020/7/14
Pre-Amplifier(0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	EMC2063	2019/10/20	2020/10/19
Pre-amplifier(26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019/3/2	2020/3/1
Band filter	N/A	N/A	N/A	N/A	N/A
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019/6/12	2020/6/11



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7 Photographs - EUT Test Setup Details

Please refer to setup photo.

The End



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