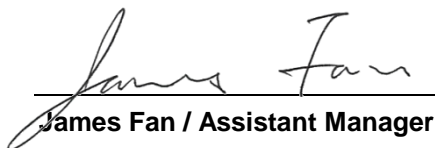


# FCC DFS Test Report

**FCC ID** : NKR-SY30  
**Equipment** : WLAN/BT Module  
**Model No.** : DHSR-SY30  
**Brand Name** : Wistron NeWeb Corp.  
**Applicant** : Wistron NeWeb Corp.  
**Address** : 20 Park Avenue II, Hsinchu Science Park,  
Hsinchu 308, Taiwan, R.O.C.  
**Standard** : 47 CFR FCC Part 15.407  
**Received Date** : Jun. 26, 2017  
**Tested Date** : Jul. 20, 2017  
**Operating Mode** : Client Without Radar Detection

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

  
James Fan / Assistant Manager

Approved by:

  
Gary Chang / Manager

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## Release Record

Report No.	Version	Description	Issued Date
FZ5D0701-02	Rev. 01	Initial issue	Jul. 24, 2017

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## Summary of Test Results

FCC Rules		Description of Test	Result
FCC 15.407	KDB 905462 D02	Non-Occupancy Period	Pass
FCC 15.407	KDB 905462 D02	Channel Closing Transmission Time	Pass
FCC 15.407	KDB 905462 D02	Channel Move Time	Pass

# 1 General Description

## 1.1 Information

This report is issued as a FCC Class II Permissive Change. The modifications are concerned with following items:

- ✧ Additional antenna cables are adding.
- ✧ Adding 5250~5350MHz and 5470~5725 MHz band by software setting

### 1.1.1 Specification of the Equipment under Test (EUT)

<b>Frequency Range (GHz)</b>	5.15 ~ 5.25, 5.25 ~ 5.35, 5.47 ~ 5.725, 5.725 ~ 5.85
<b>Wireless Function</b>	11a / HT20 / HT40 / VHT20 / VHT40 / VHT80
<b>Operating Mode at DFS Band</b>	Client without radar detection and ad hoc function
<b>Firmware / Software Version</b>	1E.12

### 1.1.2 Antenna Details (Addition antenna cable had marked in boldface)

Ant. No.	Model	Type	Connector	Frequency band (MHz) / Antenna Gain (dBi)		
				5150~5250	5250~5350	5470~5725
1	Antenna 1 (Green PCB, Cable 1)	Dipole	UFL	-2.06	-0.99	-0.01
	<b>Antenna 1 (Green PCB, Cable 1)</b>	<b>Dipole</b>	<b>UFL</b>	<b>-1.33</b>	<b>-0.28</b>	<b>0.7</b>
2	Antenna 2 (Blue PCB, Cable 2)	Dipole	UFL	1.39	1.39	1.48
	<b>Antenna 2 (Blue PCB, Cable 2)</b>	<b>Dipole</b>	<b>UFL</b>	<b>3.1</b>	<b>3.14</b>	<b>3.14</b>

Note:

1. Antenna structure is not changed. Reason to obtain higher antenna gain is shorter cable used.

The following antenna cables are used in this EUT. The only difference is cable length.

For Antenna 1 (Green PCB, Cable 1) / original

Cable No.	Model (Cable Color: Black)	Cable No.	Model (Cable Color: Gray)	Cable Length (mm)
1	8JJEKQ1990000001H1	22	8JJEKR1990000001H1	199
2	8JJEKQ2100000001H1	23	8JJEKR2100000001H1	210
3	8JJEKQ2200000001H1	24	8JJEKR2200000001H1	220
4	8JJEKQ2300000001H1	25	8JJEKR2300000001H1	230
5	8JJEKQ2400000001H1	26	8JJEKR2400000001H1	240
6	8JJEKQ2500000001H1	27	8JJEKR2500000001H1	250
7	8JJEKQ2600000001H1	28	8JJEKR2600000001H1	260
8	8JJEKQ2700000001H1	29	8JJEKR2700000001H1	270
9	8JJEKQ2800000001H1	30	8JJEKR2800000001H1	280
10	8JJEKQ2900000001H1	31	8JJEKR2900000001H1	290
11	8JJEKQ3000000001H1	32	8JJEKR3000000001H1	300
12	8JJEKQ3100000001H1	33	8JJEKR3100000001H1	310
13	8JJEKQ3200000001H1	34	8JJEKR3200000001H1	320
14	8JJEKQ3300000001H1	35	8JJEKR3300000001H1	330
15	8JJEKQ3400000001H1	36	8JJEKR3400000001H1	340
16	8JJEKQ3500000001H1	37	8JJEKR3500000001H1	350
17	8JJEKQ3600000001H1	38	8JJEKR3600000001H1	360
18	8JJEKQ3700000001H1	39	8JJEKR3700000001H1	370
19	8JJEKQ3800000001H1	40	8JJEKR3800000001H1	380
20	8JJEKQ3900000001H1	41	8JJEKR3900000001H1	390
21	8JJEKQ4000000001H1	42	8JJEKR4000000001H1	400

For Antenna 2 (Blue PCB, Cable 2) / original

Cable No.	Model (Cable Color: Black)	Cable No.	Model (Cable Color: Gray)	Cable No.	Model (Cable Color: White)	Cable Length (mm)
1	8JJEKQ4000000001H1	52	8JJEKR4000000001H1	103	8JJEKP4000000001H1	400
2	8JJEKQ4100000001H1	53	8JJEKR4100000001H1	104	8JJEKP4100000001H1	410
3	8JJEKQ4200000001H1	54	8JJEKR4200000001H1	105	8JJEKP4200000001H1	420
4	8JJEKQ4300000001H1	55	8JJEKR4300000001H1	106	8JJEKP4300000001H1	430
5	8JJEKQ4400000001H1	56	8JJEKR4400000001H1	107	8JJEKP4400000001H1	440
6	8JJEKQ4500000001H1	57	8JJEKR4500000001H1	108	8JJEKP4500000001H1	450
7	8JJEKQ4600000001H1	58	8JJEKR4600000001H1	109	8JJEKP4600000001H1	460
8	8JJEKQ4700000001H1	59	8JJEKR4700000001H1	110	8JJEKP4700000001H1	470
9	8JJEKQ4800000001H1	60	8JJEKR4800000001H1	111	8JJEKP4800000001H1	480
10	8JJEKQ4900000001H1	61	8JJEKR4900000001H1	112	8JJEKP4900000001H1	490
11	8JJEKQ5000000001H1	62	8JJEKR5000000001H1	113	8JJEKP5000000001H1	500
12	8JJEKQ5100000001H1	63	8JJEKR5100000001H1	114	8JJEKP5100000001H1	510
13	8JJEKQ5200000001H1	64	8JJEKR5200000001H1	115	8JJEKP5200000001H1	520
14	8JJEKQ5300000001H1	65	8JJEKR5300000001H1	116	8JJEKP5300000001H1	530
15	8JJEKQ5400000001H1	66	8JJEKR5400000001H1	117	8JJEKP5400000001H1	540
16	8JJEKQ5500000001H1	67	8JJEKR5500000001H1	118	8JJEKP5500000001H1	550
17	8JJEKQ5600000001H1	68	8JJEKR5600000001H1	119	8JJEKP5600000001H1	560
18	8JJEKQ5700000001H1	69	8JJEKR5700000001H1	120	8JJEKP5700000001H1	570
19	8JJEKQ5800000001H1	70	8JJEKR5800000001H1	121	8JJEKP5800000001H1	580
20	8JJEKQ5900000001H1	71	8JJEKR5900000001H1	122	8JJEKP5900000001H1	590
21	8JJEKQ6000000001H1	72	8JJEKR6000000001H1	123	8JJEKP6000000001H1	600
22	8JJEKQ6100000001H1	73	8JJEKR6100000001H1	124	8JJEKP6100000001H1	610
23	8JJEKQ6200000001H1	74	8JJEKR6200000001H1	125	8JJEKP6200000001H1	620
24	8JJEKQ6300000001H1	75	8JJEKR6300000001H1	126	8JJEKP6300000001H1	630
25	8JJEKQ6400000001H1	76	8JJEKR6400000001H1	127	8JJEKP6400000001H1	640
26	8JJEKQ6500000001H1	77	8JJEKR6500000001H1	128	8JJEKP6500000001H1	650
27	8JJEKQ6600000001H1	78	8JJEKR6600000001H1	129	8JJEKP6600000001H1	660
28	8JJEKQ6700000001H1	79	8JJEKR6700000001H1	130	8JJEKP6700000001H1	670
29	8JJEKQ6800000001H1	80	8JJEKR6800000001H1	131	8JJEKP6800000001H1	680
30	8JJEKQ6900000001H1	81	8JJEKR6900000001H1	132	8JJEKP6900000001H1	690
31	8JJEKQ7000000001H1	82	8JJEKR7000000001H1	133	8JJEKP7000000001H1	700
32	8JJEKQ7100000001H1	83	8JJEKR7100000001H1	134	8JJEKP7100000001H1	710
33	8JJEKQ7200000001H1	84	8JJEKR7200000001H1	135	8JJEKP7200000001H1	720
34	8JJEKQ7300000001H1	85	8JJEKR7300000001H1	136	8JJEKP7300000001H1	730
35	8JJEKQ7400000001H1	86	8JJEKR7400000001H1	137	8JJEKP7400000001H1	740
36	8JJEKQ7500000001H1	87	8JJEKR7500000001H1	138	8JJEKP7500000001H1	750
37	8JJEKQ7600000001H1	88	8JJEKR7600000001H1	139	8JJEKP7600000001H1	760

38	8JJEKQ7700000001H1	89	8JJEKR7700000001H1	140	8JJEKP7700000001H1	770
39	8JJEKQ7800000001H1	90	8JJEKR7800000001H1	141	8JJEKP7800000001H1	780
40	8JJEKQ7900000001H1	91	8JJEKR7900000001H1	142	8JJEKP7900000001H1	790
41	8JJEKQ8000000001H1	92	8JJEKR8000000001H1	143	8JJEKP8000000001H1	800
42	8JJEKQ8100000001H1	93	8JJEKR8100000001H1	144	8JJEKP8100000001H1	810
43	8JJEKQ8200000001H1	94	8JJEKR8200000001H1	145	8JJEKP8200000001H1	820
44	8JJEKQ8300000001H1	95	8JJEKR8300000001H1	146	8JJEKP8300000001H1	830
45	8JJEKQ8400000001H1	96	8JJEKR8400000001H1	147	8JJEKP8400000001H1	840
46	8JJEKQ8500000001H1	97	8JJEKR8500000001H1	148	8JJEKP8500000001H1	850
47	8JJEKQ8600000001H1	98	8JJEKR8600000001H1	149	8JJEKP8600000001H1	860
48	8JJEKQ8700000001H1	99	8JJEKR8700000001H1	150	8JJEKP8700000001H1	870
49	8JJEKQ8800000001H1	100	8JJEKR8800000001H1	151	8JJEKP8800000001H1	880
50	8JJEKQ8900000001H1	101	8JJEKR8900000001H1	152	8JJEKP8900000001H1	890
51	8JJEKQ9000000001H1	102	8JJEKR9000000001H1	153	8JJEKP9000000001H1	900



For Antenna 1 (Green PCB, Cable 1) / Additional

Cable No.	Model (Cable Color: Black)	Cable No.	Model (Cable Color: Gray)	Cable No.	Model (Cable Color: White)	Cable Length (mm)
1	8JJEKQ0500000001H1	37	8JJEKR0500000001H1	73	8JJEKP0500000001H1	50
2	8JJEKQ0600000001H1	38	8JJEKR0600000001H1	74	8JJEKP0600000001H1	60
3	8JJEKQ0700000001H1	39	8JJEKR0700000001H1	75	8JJEKP0700000001H1	70
4	8JJEKQ0800000001H1	40	8JJEKR0800000001H1	76	8JJEKP0800000001H1	80
5	8JJEKQ0900000001H1	41	8JJEKR0900000001H1	77	8JJEKP0900000001H1	90
6	8JJEKQ1000000001H1	42	8JJEKR1000000001H1	78	8JJEKP1000000001H1	100
7	8JJEKQ1100000001H1	43	8JJEKR1100000001H1	79	8JJEKP1100000001H1	110
8	8JJEKQ1200000001H1	44	8JJEKR1200000001H1	80	8JJEKP1200000001H1	120
9	8JJEKQ1300000001H1	45	8JJEKR1300000001H1	81	8JJEKP1300000001H1	130
10	8JJEKQ1400000001H1	46	8JJEKR1400000001H1	82	8JJEKP1400000001H1	140
11	8JJEKQ1500000001H1	47	8JJEKR1500000001H1	83	8JJEKP1500000001H1	150
12	8JJEKQ1600000001H1	48	8JJEKR1600000001H1	84	8JJEKP1600000001H1	160
13	8JJEKQ1700000001H1	49	8JJEKR1700000001H1	85	8JJEKP1700000001H1	170
14	8JJEKQ1800000001H1	50	8JJEKR1800000001H1	86	8JJEKP1800000001H1	180
15	8JJEKQ1900000001H1	51	8JJEKR1900000001H1	87	8JJEKP1900000001H1	190
16	8JJEKQ1990000001H1	52	8JJEKR1990000001H1	88	8JJEKP1990000001H1	199
17	8JJEKQ2100000001H1	53	8JJEKR2100000001H1	89	8JJEKP2100000001H1	210
18	8JJEKQ2200000001H1	54	8JJEKR2200000001H1	90	8JJEKP2200000001H1	220
19	8JJEKQ2300000001H1	55	8JJEKR2300000001H1	91	8JJEKP2300000001H1	230
20	8JJEKQ2400000001H1	56	8JJEKR2400000001H1	92	8JJEKP2400000001H1	240
21	8JJEKQ2500000001H1	57	8JJEKR2500000001H1	93	8JJEKP2500000001H1	250
22	8JJEKQ2600000001H1	58	8JJEKR2600000001H1	94	8JJEKP2600000001H1	260
23	8JJEKQ2700000001H1	59	8JJEKR2700000001H1	95	8JJEKP2700000001H1	270
24	8JJEKQ2800000001H1	60	8JJEKR2800000001H1	96	8JJEKP2800000001H1	280
25	8JJEKQ2900000001H1	61	8JJEKR2900000001H1	97	8JJEKP2900000001H1	290
26	8JJEKQ3000000001H1	62	8JJEKR3000000001H1	98	8JJEKP3000000001H1	300
27	8JJEKQ3100000001H1	63	8JJEKR3100000001H1	99	8JJEKP3100000001H1	310
28	8JJEKQ3200000001H1	64	8JJEKR3200000001H1	100	8JJEKP3200000001H1	320
29	8JJEKQ3300000001H1	65	8JJEKR3300000001H1	101	8JJEKP3300000001H1	330
30	8JJEKQ3400000001H1	66	8JJEKR3400000001H1	102	8JJEKP3400000001H1	340
31	8JJEKQ3500000001H1	67	8JJEKR3500000001H1	103	8JJEKP3500000001H1	350
32	8JJEKQ3600000001H1	68	8JJEKR3600000001H1	104	8JJEKP3600000001H1	360
33	8JJEKQ3700000001H1	69	8JJEKR3700000001H1	105	8JJEKP3700000001H1	370
34	8JJEKQ3800000001H1	70	8JJEKR3800000001H1	106	8JJEKP3800000001H1	380
35	8JJEKQ3900000001H1	71	8JJEKR3900000001H1	107	8JJEKP3900000001H1	390
36	8JJEKQ4000000001H1	72	8JJEKR4000000001H1	108	8JJEKP4000000001H1	400

For Antenna 2 (Blue PCB, Cable 2) / Additional

Cable No.	Model (Cable Color: Black)	Cable No.	Model (Cable Color: Gray)	Cable No.	Model (Cable Color: White)	Cable Length (mm)
1	8JJEKQ0500000001H1	87	8JJEKR0500000001H1	173	8JJEKP0500000001H1	50
2	8JJEKQ0600000001H1	88	8JJEKR0600000001H1	174	8JJEKP0600000001H1	60
3	8JJEKQ0700000001H1	89	8JJEKR0700000001H1	175	8JJEKP0700000001H1	70
4	8JJEKQ0800000001H1	90	8JJEKR0800000001H1	176	8JJEKP0800000001H1	80
5	8JJEKQ0900000001H1	91	8JJEKR0900000001H1	177	8JJEKP0900000001H1	90
6	8JJEKQ1000000001H1	92	8JJEKR1000000001H1	178	8JJEKP1000000001H1	100
7	8JJEKQ1100000001H1	93	8JJEKR1100000001H1	179	8JJEKP1100000001H1	110
8	8JJEKQ1200000001H1	94	8JJEKR1200000001H1	180	8JJEKP1200000001H1	120
9	8JJEKQ1300000001H1	95	8JJEKR1300000001H1	181	8JJEKP1300000001H1	130
10	8JJEKQ1400000001H1	96	8JJEKR1400000001H1	182	8JJEKP1400000001H1	140
11	8JJEKQ1500000001H1	97	8JJEKR1500000001H1	183	8JJEKP1500000001H1	150
12	8JJEKQ1600000001H1	98	8JJEKR1600000001H1	184	8JJEKP1600000001H1	160
13	8JJEKQ1700000001H1	99	8JJEKR1700000001H1	185	8JJEKP1700000001H1	170
14	8JJEKQ1800000001H1	100	8JJEKR1800000001H1	186	8JJEKP1800000001H1	180
15	8JJEKQ1900000001H1	101	8JJEKR1900000001H1	187	8JJEKP1900000001H1	190
16	8JJEKQ1990000001H1	102	8JJEKR1990000001H1	188	8JJEKP1990000001H1	199
17	8JJEKQ2100000001H1	103	8JJEKR2100000001H1	189	8JJEKP2100000001H1	210
18	8JJEKQ2200000001H1	104	8JJEKR2200000001H1	190	8JJEKP2200000001H1	220
19	8JJEKQ2300000001H1	105	8JJEKR2300000001H1	191	8JJEKP2300000001H1	230
20	8JJEKQ2400000001H1	106	8JJEKR2400000001H1	192	8JJEKP2400000001H1	240
21	8JJEKQ2500000001H1	107	8JJEKR2500000001H1	193	8JJEKP2500000001H1	250
22	8JJEKQ2600000001H1	108	8JJEKR2600000001H1	194	8JJEKP2600000001H1	260
23	8JJEKQ2700000001H1	109	8JJEKR2700000001H1	195	8JJEKP2700000001H1	270
24	8JJEKQ2800000001H1	110	8JJEKR2800000001H1	196	8JJEKP2800000001H1	280
25	8JJEKQ2900000001H1	111	8JJEKR2900000001H1	197	8JJEKP2900000001H1	290
26	8JJEKQ3000000001H1	112	8JJEKR3000000001H1	198	8JJEKP3000000001H1	300
27	8JJEKQ3100000001H1	113	8JJEKR3100000001H1	199	8JJEKP3100000001H1	310
28	8JJEKQ3200000001H1	114	8JJEKR3200000001H1	200	8JJEKP3200000001H1	320
29	8JJEKQ3300000001H1	115	8JJEKR3300000001H1	201	8JJEKP3300000001H1	330
30	8JJEKQ3400000001H1	116	8JJEKR3400000001H1	202	8JJEKP3400000001H1	340
31	8JJEKQ3500000001H1	117	8JJEKR3500000001H1	203	8JJEKP3500000001H1	350
32	8JJEKQ3600000001H1	118	8JJEKR3600000001H1	204	8JJEKP3600000001H1	360
33	8JJEKQ3700000001H1	119	8JJEKR3700000001H1	205	8JJEKP3700000001H1	370
34	8JJEKQ3800000001H1	120	8JJEKR3800000001H1	206	8JJEKP3800000001H1	380
35	8JJEKQ3900000001H1	121	8JJEKR3900000001H1	207	8JJEKP3900000001H1	390
36	8JJEKQ4000000001H1	122	8JJEKR4000000001H1	208	8JJEKP4000000001H1	400
37	8JJEKQ4100000001H1	123	8JJEKR4100000001H1	209	8JJEKP4100000001H1	410

38	8JJEKQ4200000001H1	124	8JJEKR4200000001H1	210	8JJEKP4200000001H1	420
39	8JJEKQ4300000001H1	125	8JJEKR4300000001H1	211	8JJEKP4300000001H1	430
40	8JJEKQ4400000001H1	126	8JJEKR4400000001H1	212	8JJEKP4400000001H1	440
41	8JJEKQ4500000001H1	127	8JJEKR4500000001H1	213	8JJEKP4500000001H1	450
42	8JJEKQ4600000001H1	128	8JJEKR4600000001H1	214	8JJEKP4600000001H1	460
43	8JJEKQ4700000001H1	129	8JJEKR4700000001H1	215	8JJEKP4700000001H1	470
44	8JJEKQ4800000001H1	130	8JJEKR4800000001H1	216	8JJEKP4800000001H1	480
45	8JJEKQ4900000001H1	131	8JJEKR4900000001H1	217	8JJEKP4900000001H1	490
46	8JJEKQ5000000001H1	132	8JJEKR5000000001H1	218	8JJEKP5000000001H1	500
47	8JJEKQ5100000001H1	133	8JJEKR5100000001H1	219	8JJEKP5100000001H1	510
48	8JJEKQ5200000001H1	134	8JJEKR5200000001H1	220	8JJEKP5200000001H1	520
49	8JJEKQ5300000001H1	135	8JJEKR5300000001H1	221	8JJEKP5300000001H1	530
50	8JJEKQ5400000001H1	136	8JJEKR5400000001H1	222	8JJEKP5400000001H1	540
51	8JJEKQ5500000001H1	137	8JJEKR5500000001H1	223	8JJEKP5500000001H1	550
52	8JJEKQ5600000001H1	138	8JJEKR5600000001H1	224	8JJEKP5600000001H1	560
53	8JJEKQ5700000001H1	139	8JJEKR5700000001H1	225	8JJEKP5700000001H1	570
54	8JJEKQ5800000001H1	140	8JJEKR5800000001H1	226	8JJEKP5800000001H1	580
55	8JJEKQ5900000001H1	141	8JJEKR5900000001H1	227	8JJEKP5900000001H1	590
56	8JJEKQ6000000001H1	142	8JJEKR6000000001H1	228	8JJEKP6000000001H1	600
57	8JJEKQ6100000001H1	143	8JJEKR6100000001H1	229	8JJEKP6100000001H1	610
58	8JJEKQ6200000001H1	144	8JJEKR6200000001H1	230	8JJEKP6200000001H1	620
59	8JJEKQ6300000001H1	145	8JJEKR6300000001H1	231	8JJEKP6300000001H1	630
60	8JJEKQ6400000001H1	146	8JJEKR6400000001H1	232	8JJEKP6400000001H1	640
61	8JJEKQ6500000001H1	147	8JJEKR6500000001H1	233	8JJEKP6500000001H1	650
62	8JJEKQ6600000001H1	148	8JJEKR6600000001H1	234	8JJEKP6600000001H1	660
63	8JJEKQ6700000001H1	149	8JJEKR6700000001H1	235	8JJEKP6700000001H1	670
64	8JJEKQ6800000001H1	150	8JJEKR6800000001H1	236	8JJEKP6800000001H1	680
65	8JJEKQ6900000001H1	151	8JJEKR6900000001H1	237	8JJEKP6900000001H1	690
66	8JJEKQ7000000001H1	152	8JJEKR7000000001H1	238	8JJEKP7000000001H1	700
67	8JJEKQ7100000001H1	153	8JJEKR7100000001H1	239	8JJEKP7100000001H1	710
68	8JJEKQ7200000001H1	154	8JJEKR7200000001H1	240	8JJEKP7200000001H1	720
69	8JJEKQ7300000001H1	155	8JJEKR7300000001H1	241	8JJEKP7300000001H1	730
70	8JJEKQ7400000001H1	156	8JJEKR7400000001H1	242	8JJEKP7400000001H1	740
71	8JJEKQ7500000001H1	157	8JJEKR7500000001H1	243	8JJEKP7500000001H1	750
72	8JJEKQ7600000001H1	158	8JJEKR7600000001H1	244	8JJEKP7600000001H1	760
73	8JJEKQ7700000001H1	159	8JJEKR7700000001H1	245	8JJEKP7700000001H1	770
74	8JJEKQ7800000001H1	160	8JJEKR7800000001H1	246	8JJEKP7800000001H1	780
75	8JJEKQ7900000001H1	161	8JJEKR7900000001H1	247	8JJEKP7900000001H1	790
76	8JJEKQ8000000001H1	162	8JJEKR8000000001H1	248	8JJEKP8000000001H1	800
77	8JJEKQ8100000001H1	163	8JJEKR8100000001H1	249	8JJEKP8100000001H1	810

78	8JJEKQ8200000001H1	164	8JJEKR8200000001H1	250	8JJEKP8200000001H1	820
79	8JJEKQ8300000001H1	165	8JJEKR8300000001H1	251	8JJEKP8300000001H1	830
80	8JJEKQ8400000001H1	166	8JJEKR8400000001H1	252	8JJEKP8400000001H1	840
81	8JJEKQ8500000001H1	167	8JJEKR8500000001H1	253	8JJEKP8500000001H1	850
82	8JJEKQ8600000001H1	168	8JJEKR8600000001H1	254	8JJEKP8600000001H1	860
83	8JJEKQ8700000001H1	169	8JJEKR8700000001H1	255	8JJEKP8700000001H1	870
84	8JJEKQ8800000001H1	170	8JJEKR8800000001H1	256	8JJEKP8800000001H1	880
85	8JJEKQ8900000001H1	171	8JJEKR8900000001H1	257	8JJEKP8900000001H1	890
86	8JJEKQ9000000001H1	172	8JJEKR9000000001H1	258	8JJEKP9000000001H1	900

## 1.2 Support Equipment List

Support Equipment List				
No.	Equipment	Brand Name	Model Name	FCC ID
1	AP (Master)	Netgear	R6100	PY312400225
2	Notebook	DELL	LATITUDE-E5420	B6FV9T1
3	Notebook	DELL	LATITUDE-E6430	9ZFB4X1

### 1.3 The Equipment List

Test Site	(DF01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Dec. 07, 2016	Dec. 06, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	MY15686/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	296081/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	500199/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	500202/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	296088/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	329023/4	Dec. 16, 2016	Dec. 15, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX_104	329021/4	Dec. 16, 2016	Dec. 15, 2017
Vector signal generator	R&S	SMJ100A	100498	Dec. 07, 2016	Dec. 06, 2017
Note: Calibration Interval of instruments listed above is one year.					

### 1.4 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
DFS	DF01-WS	25°C / 64%	Jack Li

### 1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.407

FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

FCC KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02

FCC KDB 905462 D06 802 11 Channel Plans v02

## 2 Technical Requirements for DFS

### 2.1 Applicability of DFS Requirements

#### 2.1.1 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	Not required	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

#### 2.1.2 Applicability of DFS Requirements during Normal Operation

Requirement	Operational Mode	
	Master 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

Additional requirements for devices with multiple bandwidth modes	Operational Mode	
	Master or Client With Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check 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 all 20 MHz channel blocks and a null frequencies between the bonded 20 MHz channel blocks.		

## 2.2 DFS Detection Thresholds and Response Requirement

Below table provides the DFS Detection Thresholds for Master Devices as well as Client Devices incorporating In-Service Monitoring.

### 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 and that do not meet the power spectral density requirement	-64 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.  
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

### 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 100% of the U- NII 99% transmission power bandwidth. (See Note 3.)

**Note 1:** Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.  
**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 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

## 2.3 Radar Test Waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. 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.

### 2.3.1 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note1	See Note1
1		Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{ \left( \frac{1}{360} \right), \left( \frac{19 \cdot 10^6}{PRI_{\mu sec}} \right) \right\}$	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
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. 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. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.



### Pulse Repetition Intervals Values for Test A

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

### 2.3.2 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 Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

### 2.3.3 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

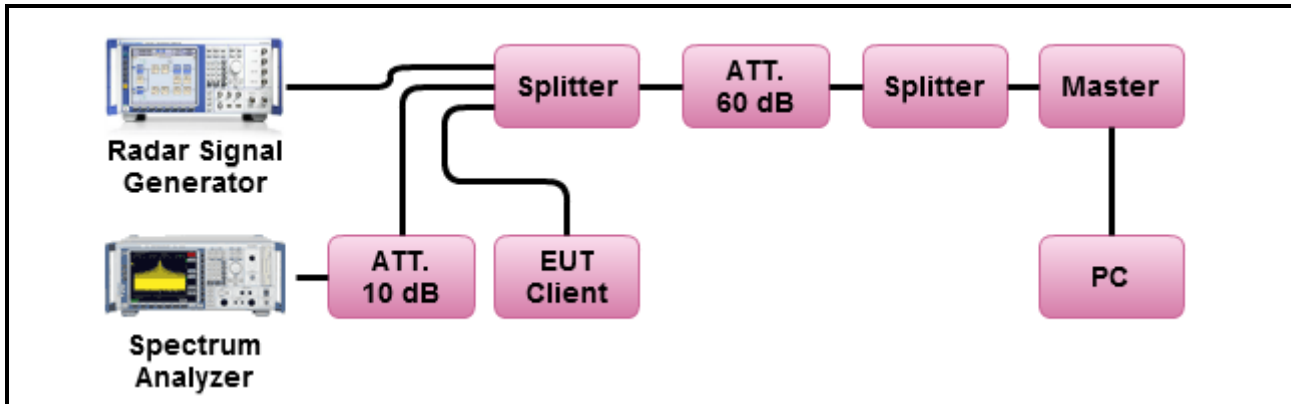
For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

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

### 2.3.4 Radar waveform generation

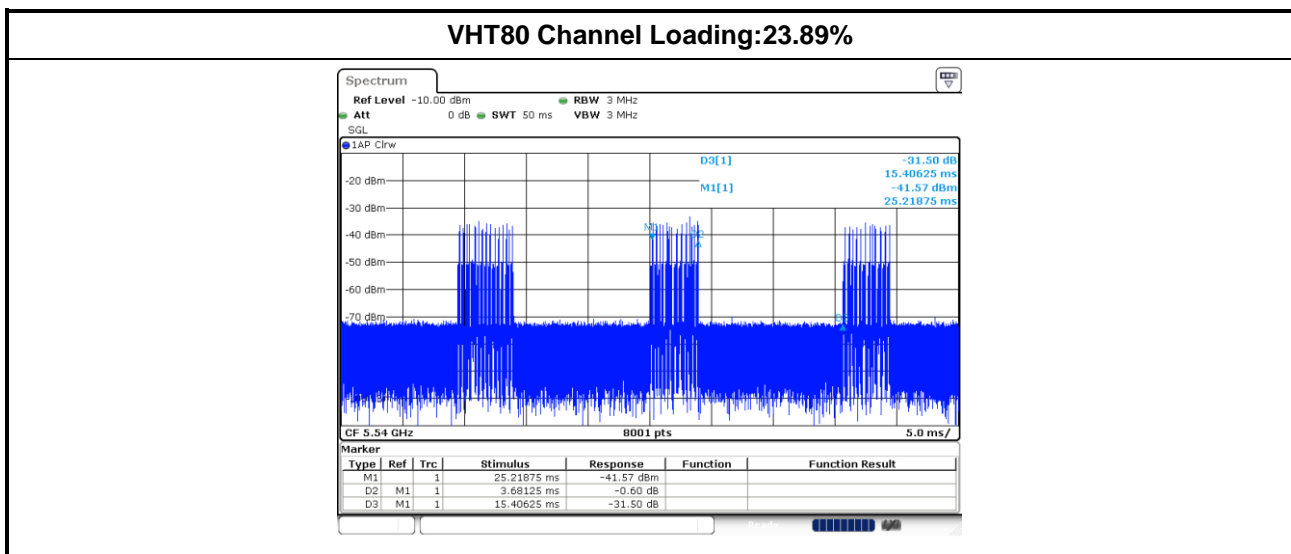
A single R&S SMU200A Vector Signal Generator is used for the DFS signal generation. This instrument is capable of generating all the above waveforms with Pulse Sequencer Software. The R&S Pulse Sequencer Software comes as a stand-alone PC based software with preconfigured project files for DFS. It simplifies the generation of all required waveforms and offers a one box solution

### 2.3.5 DFS Test Setup



### 2.3.6 Channel Loading/Data Streaming

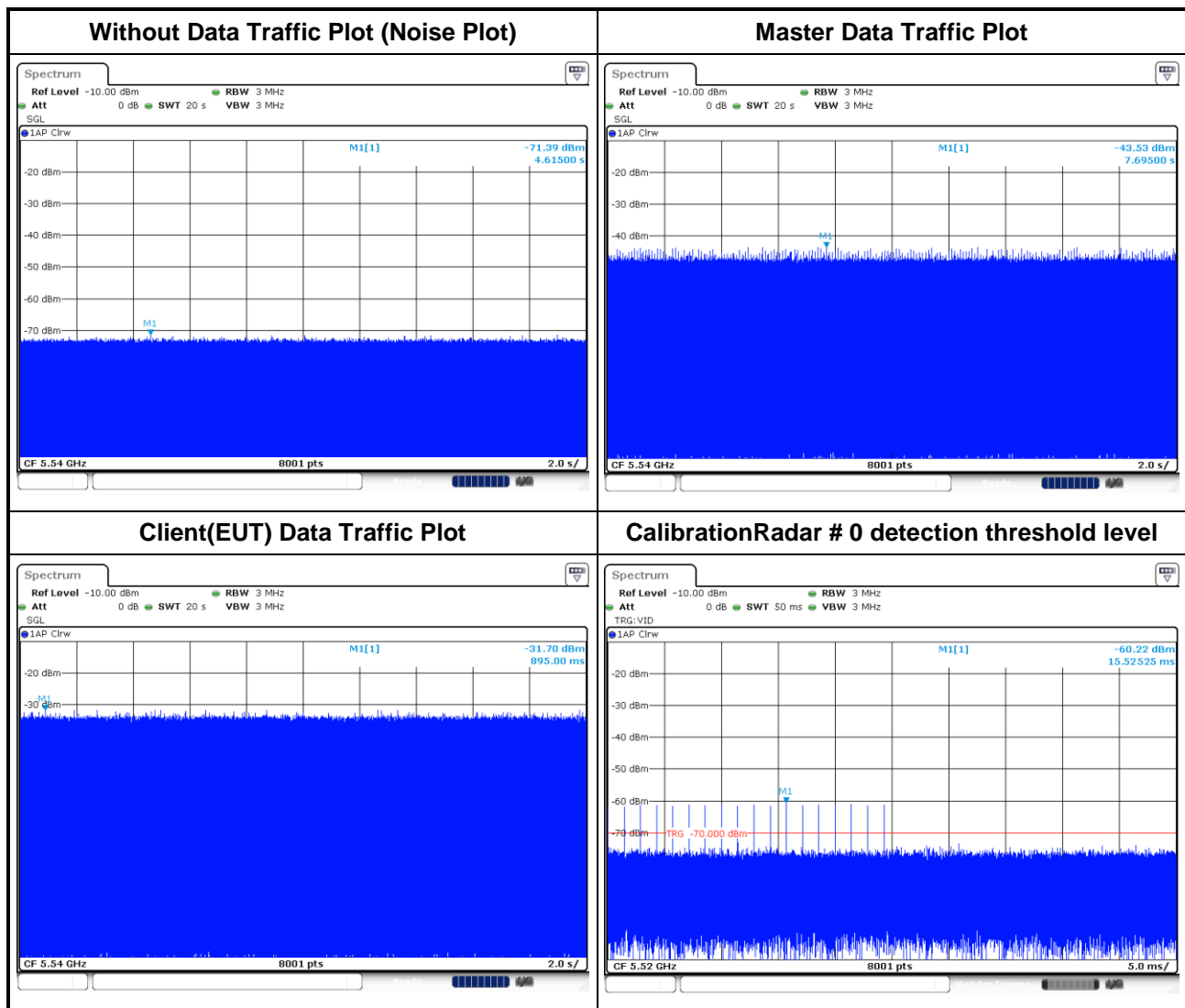
<input checked="" type="checkbox"/>	IP Based (Load Based) - stream the test file from the Master to the Client.
<input type="checkbox"/>	The data file must be of a type that is typical for the device (i.e., MPEG-2, MPEG-4, WAV, MP3, MP4, AVI, etc.) and must generally be transmitting in a streaming mode.
<input checked="" type="checkbox"/>	Minimum channel loading of approximately 17 %



### 3 DFS test result

#### 3.1 DFS Detection Threshold levels

Master DFS Threshold Level
DFS Threshold level: -60.1 dBm
The Interference <b>Radar Detection Threshold Level</b> is $(-64\text{dBm}) + (2.9 [\text{dBi}]) + \{1 \text{ dB}\} = -60.1 \text{ dBm}$ . That had been taken into account the master output power range and antenna gain.



## 3.2 In-Service Monitoring

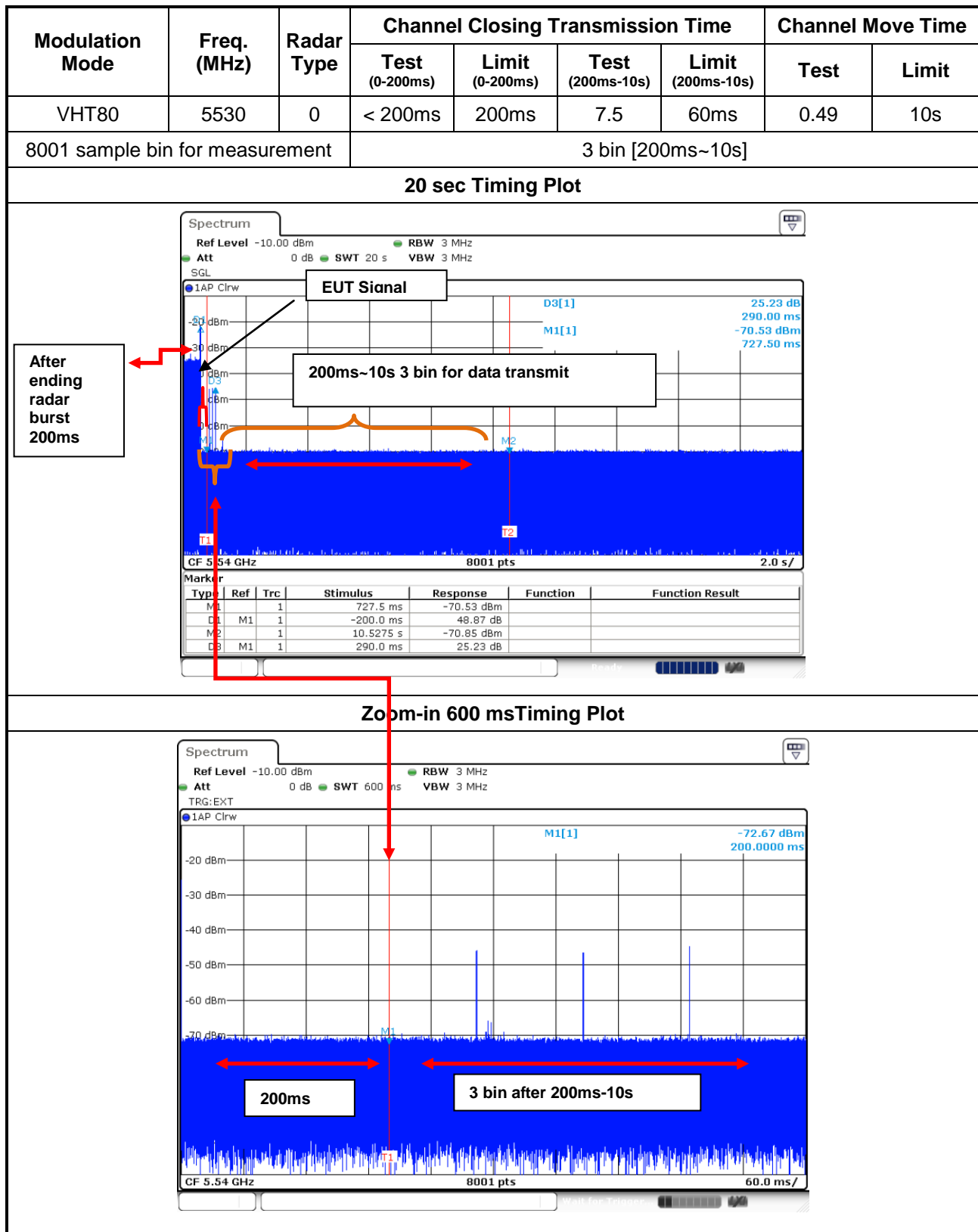
### 3.2.1 In-service Monitoring Limit

In-service Monitoring Limit	
Channel Move Time	10 sec
Channel Closing Transmission Time	200 ms + an aggregate of 60 ms over remaining 10 sec periods.
Non-occupancy period	Minimum 30 minutes

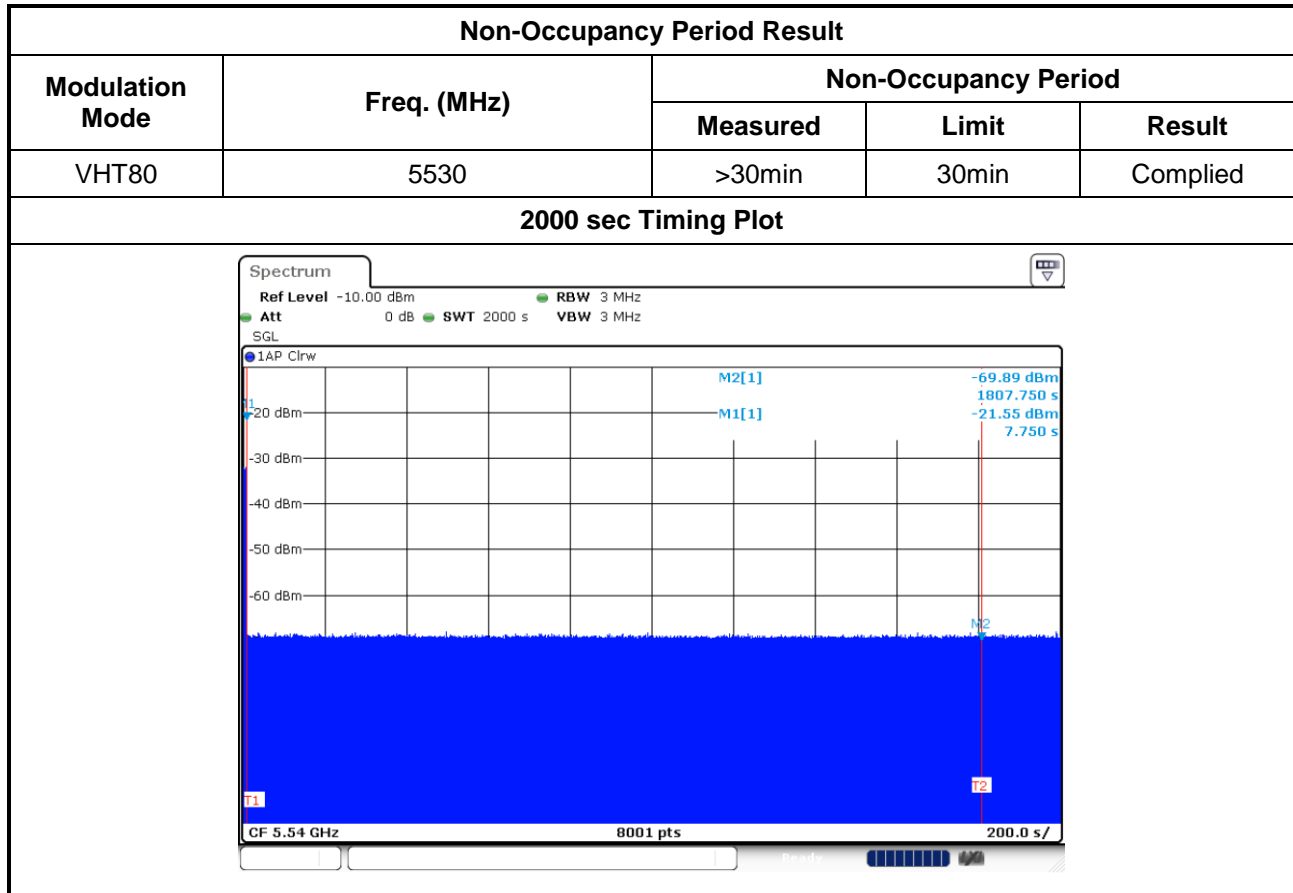
### 3.2.2 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as FCC KDB 905642 D02, clause 7.8.3 verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time limits.
<input checked="" type="checkbox"/>	Refer as FCC KDB 905642 D02, clause 7.8.3 verified during In-Service Monitoring; Non-Occupancy Period. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Non-Occupancy Period). Compare the Non-Occupancy Period limits.

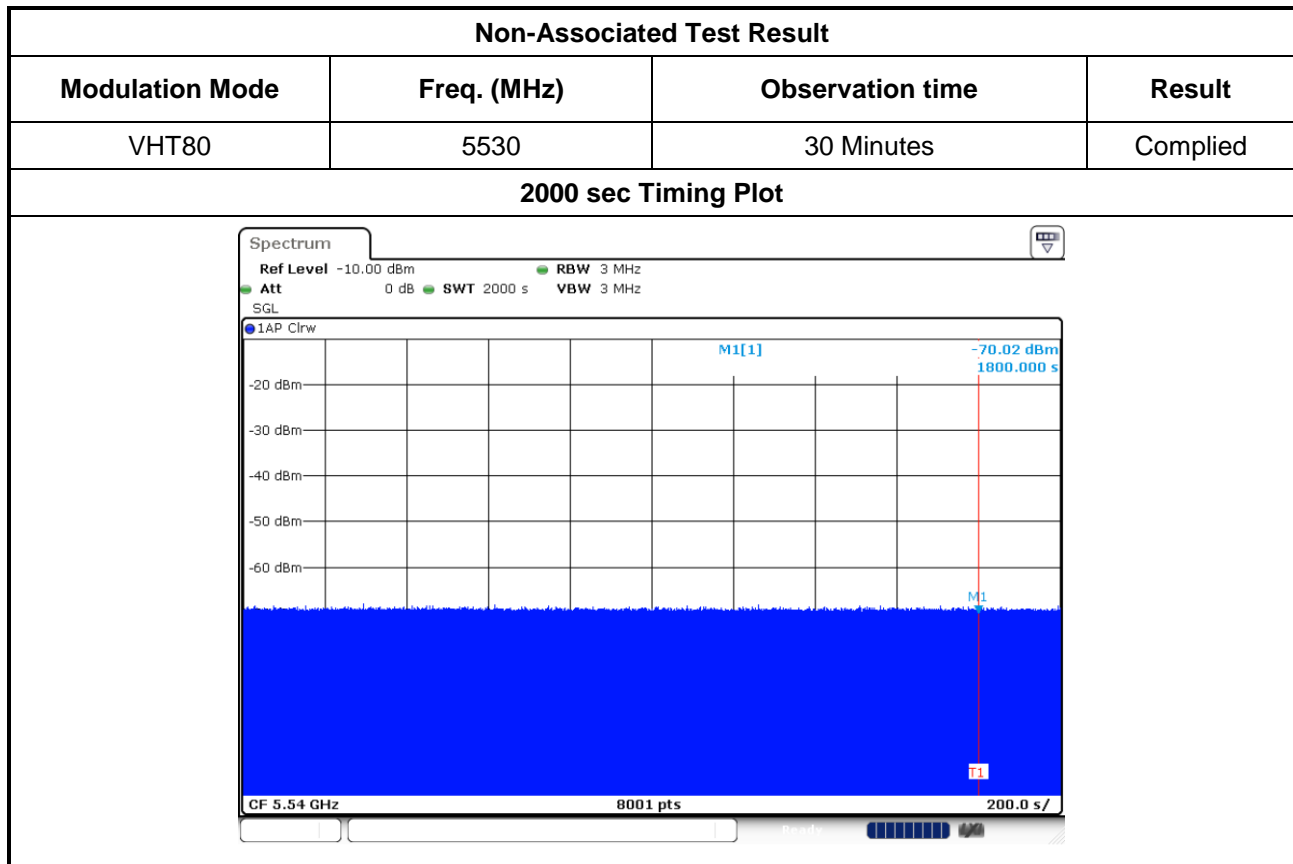
### 3.2.3 Test Result of Channel Closing Transmission and Channel Move Time



### 3.2.4 Test Result of Non-Occupancy



### 3.3 Non-Associated





## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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