Test Plot

802.11ac40 on channel 118

802.11ac40 on channel 118

Note: Pre-test all modes and channels, only the worst data is recorded in the report

TX (5G) Mode Frequency Band 3 (5725-5850MHz)

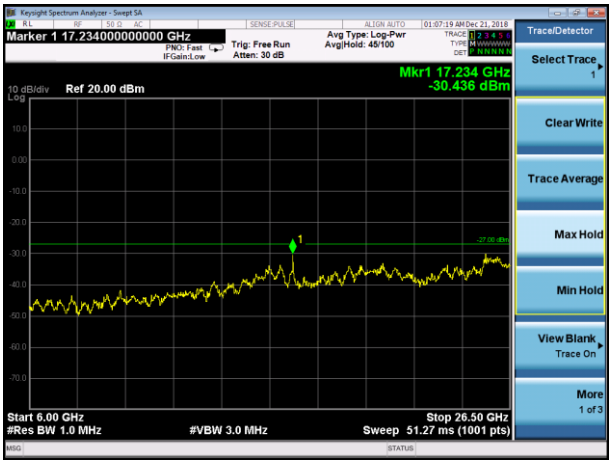
Test Plot

802.11a on channel 149

802.11n20 on channel 149

802.11a on channel 149

802.11n20 on channel 149



Note: Pre-test all modes and channels, only the worst data is recorded in the report

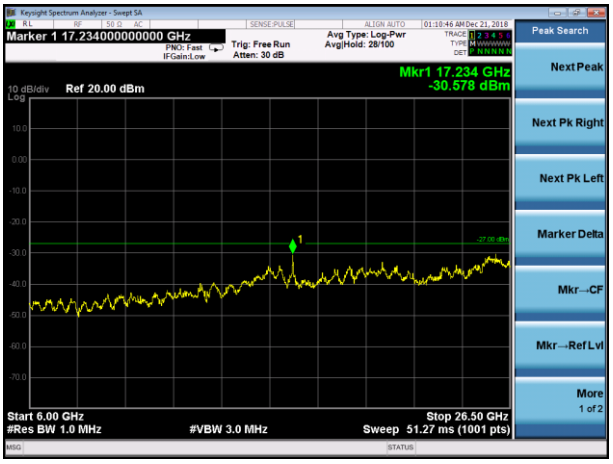
Test Plot

802.11n40 on channel 151

802.11ac20 on channel 149

802.11n40 on channel 151

802.11ac20 on channel 149



Note: Pre-test all modes and channels, only the worst data is recorded in the report

Test Plot

802.11ac40 on channel 151

802.11ac40 on channel 151

Note: Pre-test all modes and channels, only the worst data is recorded in the report

10. FREQUENCY STABILITY MEASUREMENT

10.1 LIMIT

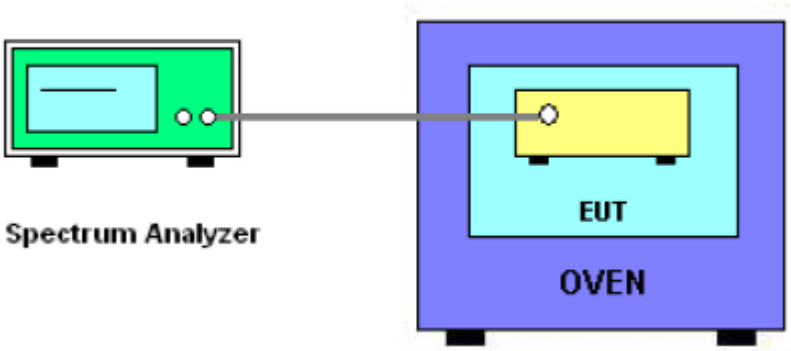
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

10.2 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10_6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -20°C~70°C.

10.3 TEST SETUP LAYOUT



10.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.

10.5 TEST RESULTS

EUT：	LTE SMARTPHONE	Model Name. ：	RG725
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX Frequency Band I (5150-5250MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5180.0521	5180	0.0521	-10.0579
		V max (V)	4.37	5180.0326	5180	0.0326	-6.2934
		V min (V)	3.23	5180.0241	5180	0.0241	-4.6525
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5180.0059	5180	0.0059	-1.1390
		T (°C)	-10	5180.0107	5180	0.0107	-2.0656
		T (°C)	0	5180.0325	5180	0.0325	-6.2741
		T (°C)	10	5180.0385	5180	0.0385	-7.4324
		T (°C)	20	5180.0298	5180	0.0298	-5.7529
		T (°C)	30	5180.0213	5180	0.0213	-4.1120
		T (°C)	40	5180.0123	5180	0.0123	-2.3745
		T (°C)	50	5180.0097	5180	0.0097	-1.8726
		T (°C)	60	5180.0417	5180	0.0417	-8.0502
		T (°C)	70	5180.0695	5180	0.0695	-13.4170
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5200.0251	5200	0.0251	-4.8269
		V max (V)	4.37	5200.0425	5200	0.0425	-8.1731
		V min (V)	3.23	5200.0694	5200	0.0694	-13.3462
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5200.0632	5200	0.0632	-12.1538
		T (°C)	-10	5200.0529	5200	0.0529	-10.1731
		T (°C)	0	5200.0437	5200	0.0437	-8.4038
		T (°C)	10	5200.0923	5200	0.0923	-17.7500
		T (°C)	20	5200.0633	5200	0.0633	-12.1731
		T (°C)	30	5200.0124	5200	0.0124	-2.3846
		T (°C)	40	5200.0739	5200	0.0739	-14.2115
		T (°C)	50	5200.0418	5200	0.0418	-8.0385
		T (°C)	60	5200.0326	5200	0.0326	-6.2692
		T (°C)	70	5200.0421	5200	0.0421	-8.0962
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5240.0132	5240	0.0132	-2.5191
		V max (V)	4.37	5240.0417	5240	0.0417	-7.9580
		V min (V)	3.23	5240.0095	5240	0.0095	-1.8130
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5240.0092	5240	0.0092	-1.7557
		T (°C)	-10	5240.0034	5240	0.0034	-0.6489
		T (°C)	0	5240.0147	5240	0.0147	-2.8053
		T (°C)	10	5240.0852	5240	0.0852	-16.2595
		T (°C)	20	5240.0111	5240	0.0111	-2.1183
		T (°C)	30	5240.0126	5240	0.0126	-2.4046
		T (°C)	40	5240.0069	5240	0.0069	-1.3168
		T (°C)	50	5240.0074	5240	0.0074	-1.4122
		T (°C)	60	5240.0058	5240	0.0058	-1.1069
		T (°C)	70	5240.0100	5240	0.0100	-1.9084
Limits				± 20 ppm			
Result				Complies			

EUT：	LTE SMARTPHONE	Model Name. ：	RG725
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX Frequency Band 2A (5250-5350MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5260.01190	5260	0.01190	-2.2624
		V max (V)	4.37	5260.01010	5260	0.01010	-1.9202
		V min (V)	3.23	5260.01550	5260	0.01550	-2.9468
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5260.00120	5260	0.00120	-0.2281
		T (°C)	-10	5260.01880	5260	0.01880	-3.5741
		T (°C)	0	5260.00250	5260	0.00250	-0.4753
		T (°C)	10	5260.01060	5260	0.01060	-2.0152
		T (°C)	20	5260.00190	5260	0.00190	-0.3612
		T (°C)	30	5260.00390	5260	0.00390	-0.7414
		T (°C)	40	5260.01040	5260	0.01040	-1.9772
		T (°C)	50	5260.00220	5260	0.00220	-0.4183
		T (°C)	60	5260.01850	5260	0.01850	-3.5171
		T (°C)	70	5260.01690	5260	0.01690	-3.2129
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5280.00810	5280	0.00810	-1.5341
		V max (V)	4.37	5280.00790	5280	0.00790	-1.4962
		V min (V)	3.23	5280.00910	5280	0.00910	-1.7235
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5280.01250	5280	0.01250	-2.3674
		T (°C)	-10	5280.01120	5280	0.01120	-2.1212
		T (°C)	0	5280.00500	5280	0.00500	-0.9470
		T (°C)	10	5280.00590	5280	0.00590	-1.1174
		T (°C)	20	5280.00600	5280	0.00600	-1.1364
		T (°C)	30	5280.00400	5280	0.00400	-0.7576
		T (°C)	40	5280.01250	5280	0.01250	-2.3674
		T (°C)	50	5280.00660	5280	0.00660	-1.2500
		T (°C)	60	5280.00840	5280	0.00840	-1.5909
		T (°C)	70	5280.00300	5280	0.00300	-0.5682
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5320.01950	5320	0.01950	-3.6654
		V max (V)	4.37	5320.01470	5320	0.01470	-2.7632
		V min (V)	3.23	5320.01240	5320	0.01240	-2.3308
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5320.00770	5320	0.00770	-1.4474
		T (°C)	-10	5320.00630	5320	0.00630	-1.1842
		T (°C)	0	5320.00870	5320	0.00870	-1.6353
		T (°C)	10	5320.00190	5320	0.00190	-0.3571
		T (°C)	20	5320.00150	5320	0.00150	-0.2820
		T (°C)	30	5320.00740	5320	0.00740	-1.3910
		T (°C)	40	5320.01940	5320	0.01940	-3.6466
		T (°C)	50	5320.01080	5320	0.01080	-2.0301
		T (°C)	60	5320.00380	5320	0.00380	-0.7143
		T (°C)	70	5320.01750	5320	0.01750	-3.2895
Limits				± 20 ppm			
Result				Complies			

EUT：	LTE SMARTPHONE	Model Name. ：	RG725
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX Frequency Band 2C (5470-5725MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5500.00592	5500	0.00592	-1.0764
		V max (V)	4.37	5500.00429	5500	0.00429	-0.7800
		V min (V)	3.23	5500.00198	5500	0.00198	-0.3600
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5500.00301	5500	0.00301	-0.5473
		T (°C)	-10	5500.00992	5500	0.00992	-1.8036
		T (°C)	0	5500.00352	5500	0.00352	-0.6400
		T (°C)	10	5500.00365	5500	0.00365	-0.6636
		T (°C)	20	5500.00590	5500	0.00590	-1.0727
		T (°C)	30	5500.00292	5500	0.00292	-0.5309
		T (°C)	40	5500.00229	5500	0.00229	-0.4164
		T (°C)	50	5500.00020	5500	0.00020	-0.0364
		T (°C)	60	5500.00289	5500	0.00289	-0.5255
		T (°C)	70	5500.00560	5500	0.00560	-1.0182
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5600MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5600.00739	5600	0.00739	-1.3196
		V max (V)	4.37	5600.00918	5600	0.00918	-1.6393
		V min (V)	3.23	5600.00855	5600	0.00855	-1.5268
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5600MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5600.00700	5600	0.00700	-1.2500
		T (°C)	-10	5600.00077	5600	0.00077	-0.1375
		T (°C)	0	5600.00058	5600	0.00058	-0.1036
		T (°C)	10	5600.00527	5600	0.00527	-0.9411
		T (°C)	20	5600.00779	5600	0.00779	-1.3911
		T (°C)	30	5600.00146	5600	0.00146	-0.2607
		T (°C)	40	5600.00459	5600	0.00459	-0.8196
		T (°C)	50	5600.00476	5600	0.00476	-0.8500
		T (°C)	60	5600.00840	5600	0.00840	-1.5000
		T (°C)	70	5600.00275	5600	0.00275	-0.4911
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5700.00422	5700	0.00422	-0.7404
		V max (V)	4.37	5700.00589	5700	0.00589	-1.0333
		V min (V)	3.23	5700.00771	5700	0.00771	-1.3526
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5700.00911	5700	0.00911	-1.5982
		T (°C)	-10	5700.00407	5700	0.00407	-0.7140
		T (°C)	0	5700.00292	5700	0.00292	-0.5123
		T (°C)	10	5700.00176	5700	0.00176	-0.3088
		T (°C)	20	5700.00773	5700	0.00773	-1.3561
		T (°C)	30	5700.00936	5700	0.00936	-1.6421
		T (°C)	40	5700.00560	5700	0.00560	-0.9825
		T (°C)	50	5700.00142	5700	0.00142	-0.2491
		T (°C)	60	5700.00367	5700	0.00367	-0.6439
		T (°C)	70	5700.00362	5700	0.00362	-0.6351
Limits				± 20 ppm			
Result				Complies			

EUT：	LTE SMARTPHONE	Model Name. ：	RG725
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1012 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX Frequency(5745-5825MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5745.00306	5745	0.00306	-0.5326
		V max (V)	4.37	5745.00391	5745	0.00391	-0.6806
		V min (V)	3.23	5745.00096	5745	0.00096	-0.1671
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5745.00231	5745	0.00231	-0.4021
		T (°C)	-10	5745.00965	5745	0.00965	-1.6797
		T (°C)	0	5745.00130	5745	0.00130	-0.2263
		T (°C)	10	5745.00512	5745	0.00512	-0.8912
		T (°C)	20	5745.00726	5745	0.00726	-1.2637
		T (°C)	30	5745.00576	5745	0.00576	-1.0026
		T (°C)	40	5745.00685	5745	0.00685	-1.1923
		T (°C)	50	5745.00570	5745	0.00570	-0.9922
		T (°C)	60	5745.00469	5745	0.00469	-0.8164
		T (°C)	70	5745.00896	5745	0.00896	-1.5596
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5785.00639	5785	0.00639	-1.1046
		V max (V)	4.37	5785.00831	5785	0.00831	-1.4365
		V min (V)	3.23	5785.00266	5785	0.00266	-0.4598
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5785.00920	5785	0.00920	-1.5898
		T (°C)	-10	5785.00775	5785	0.00775	-1.3392
		T (°C)	0	5785.00676	5785	0.00676	-1.1691
		T (°C)	10	5785.01349	5785	0.01349	-2.3324
		T (°C)	20	5785.01308	5785	0.01308	-2.2605
		T (°C)	30	5785.00832	5785	0.00832	-1.4389
		T (°C)	40	5785.00743	5785	0.00743	-1.2851
		T (°C)	50	5785.00966	5785	0.00966	-1.6692
		T (°C)	60	5785.00418	5785	0.00418	-0.7223
		T (°C)	70	5785.00748	5785	0.00748	-1.2923
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	3.80	5825.00722	5825	0.00722	-1.2391
		V max (V)	4.37	5825.01143	5825	0.01143	-1.9616
		V min (V)	3.23	5825.01310	5825	0.01310	-2.2485
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	3.8	T (°C)	-20	5825.01299	5825	0.01299	-2.2303
		T (°C)	-10	5825.00899	5825	0.00899	-1.5436
		T (°C)	0	5825.00293	5825	0.00293	-0.5030
		T (°C)	10	5825.00990	5825	0.00990	-1.6999
		T (°C)	20	5825.00726	5825	0.00726	-1.2460
		T (°C)	30	5825.00100	5825	0.00100	-0.1725
		T (°C)	40	5825.00496	5825	0.00496	-0.8518
		T (°C)	50	5825.00771	5825	0.00771	-1.3243
		T (°C)	60	5825.01098	5825	0.01098	-1.8854
		T (°C)	70	5825.00883	5825	0.00883	-1.5163
Limits				± 20 ppm			
Result				Complies			

11. DYNAMIC FREQUENCY SELECTION(DFS)

11.1 APPLICABILITY OF DFS REQUIREMENTS

EUT is client and operates as client without radar detection function.

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	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

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Not required	Yes
Channel Move Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes
Client Beacon Test	N/A	Yes	Yes

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 (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.

11.2 INTERFERENCE THRESHOLD VALUES, MASTER OR CLIENT INCORPORATING IN-SERVICE MONITORING

Maximum Transmit Power	Value (see notes 1, 2, and 3)
EIRP ≥ 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

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.
Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

11.3 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 99% 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 transmission.
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 Channel changes (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 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

11.4 SHORT PULSE RADAR TEST WAVEFORMS

As the EUT is a Client Device with no Radar Detection, only one type radar pulse is required for the testing. Radar Pulse type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time.

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	60%	30
1	1	Test A Test B	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu sec}}\right)\right\}$	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

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
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

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.
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. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

11.5 CALIBRATION SETUP AND DFS TEST RESULTS

Radar Waveform Calibration Procedure

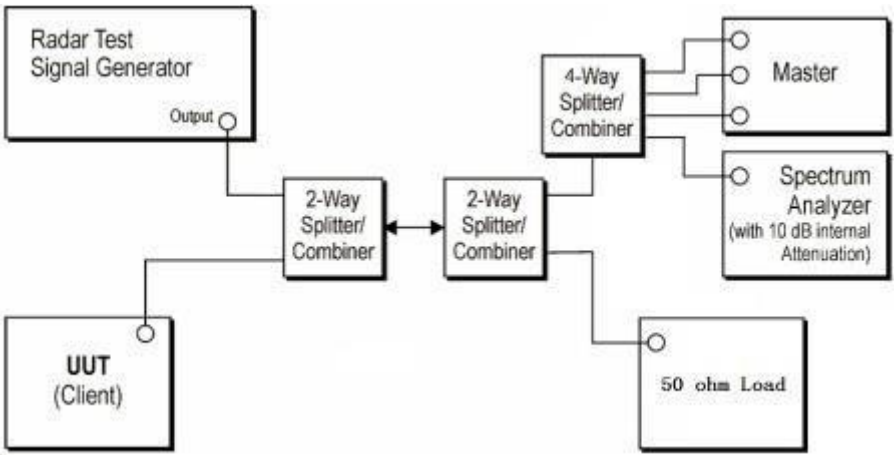
1) A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master

2) The interference Radar Detection Threshold Level is -62dBm + 0dBi +1dB = -61dBm that had been taken into account the output power range and antenna gain.

3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (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 3 MHz. The spectrum analyzer had offset -1.0dB to compensate RF cable loss 1.0dB.

4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was - -62dBm + 0dBi +1dB = -61dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

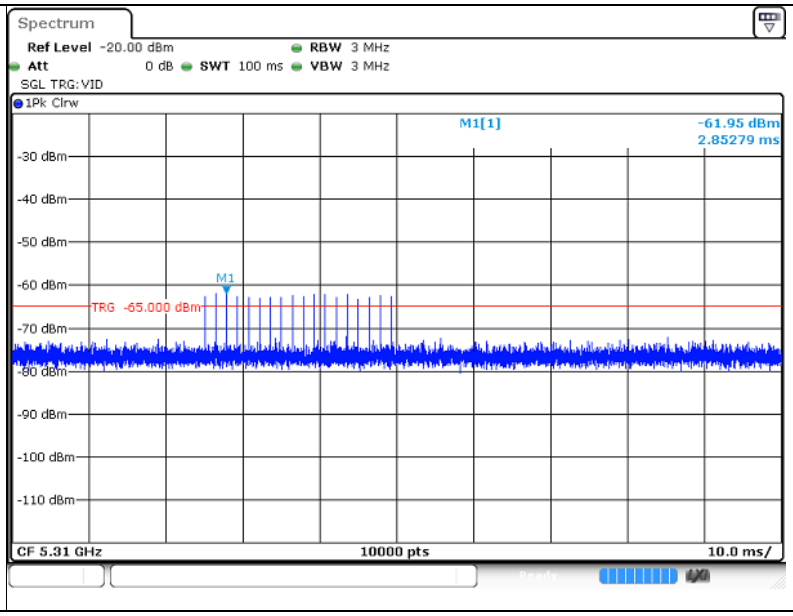
11.6 CONDUCTED CALIBRATION SETUP



11.7 RADAR WAVEFORM CALIBRATION RESULT

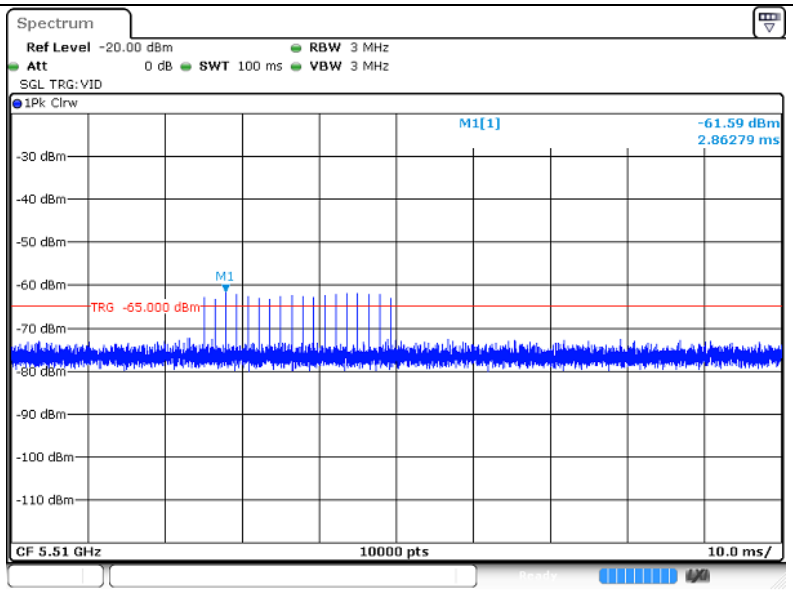
Reference DFS test signal

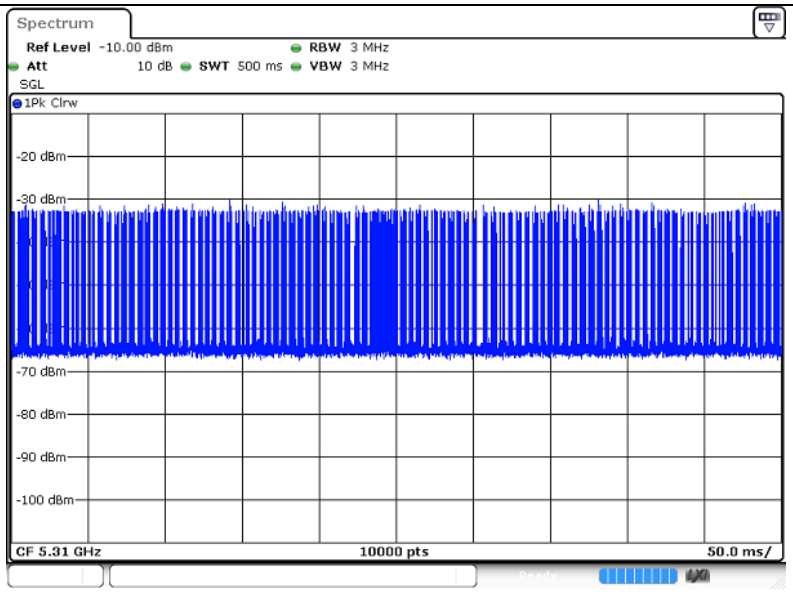
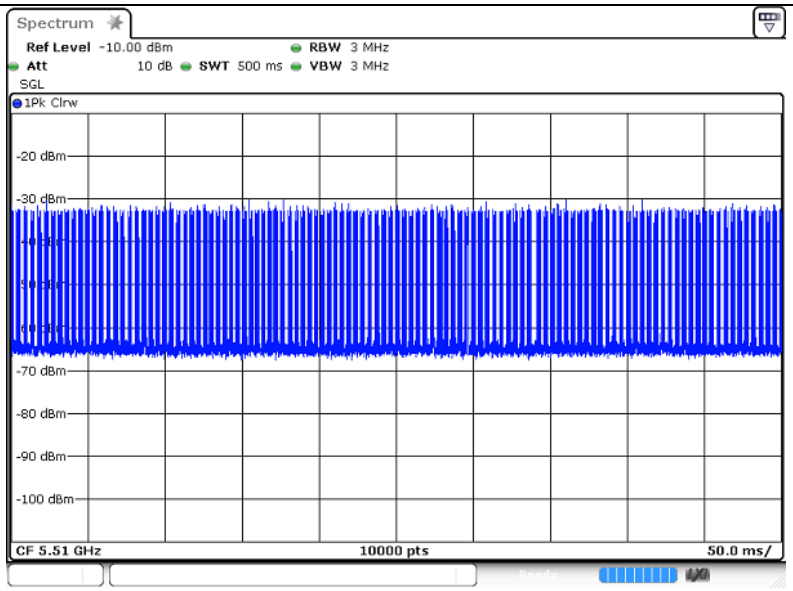
53100MHz



Reference DFS test signal

5510MHz

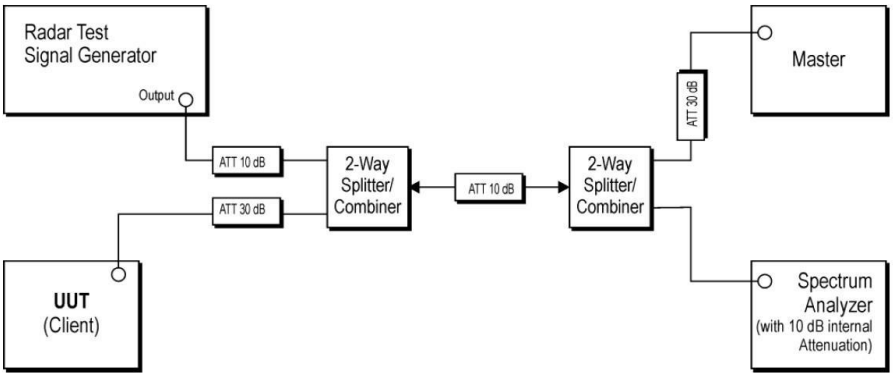


EUT data traffic (Slave)
5310MHz

EUT data traffic (Slave)
5510MHz


11.8 IN-SERVICE MONITORING: CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD

TEST CONFIGURATION:

Setup for Client with injection at the Master



TEST PROCEDURE:

1. The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
2. The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device
3. A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4. EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is Streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
5. When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
6. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom In 600ms plot of the Short Pulse Radar Type
7. Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
8. Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

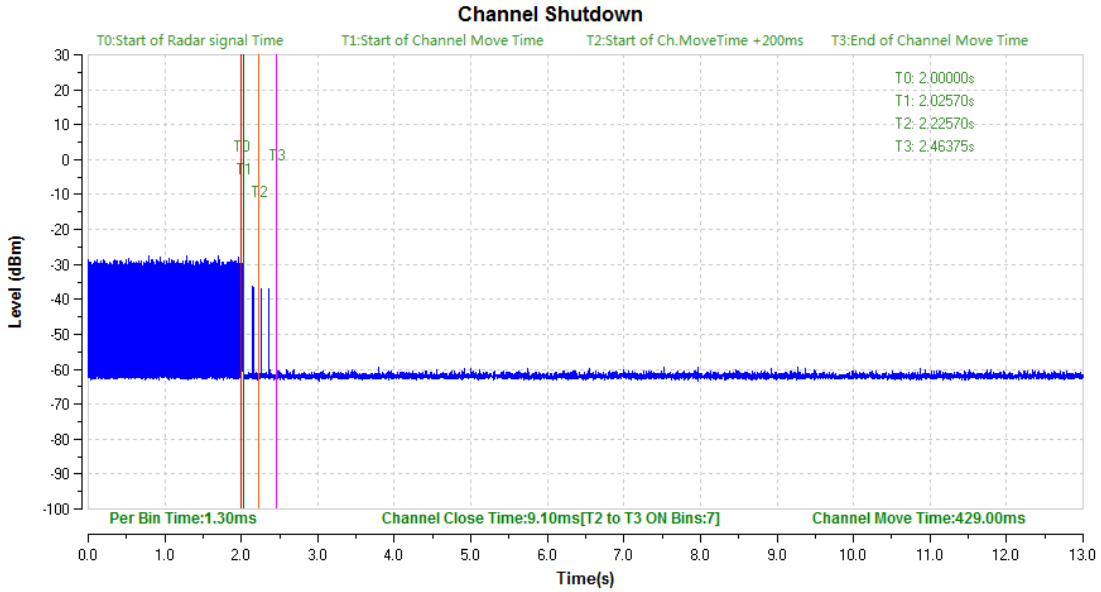
TEST MODE:

Please refer to the clause 2.2

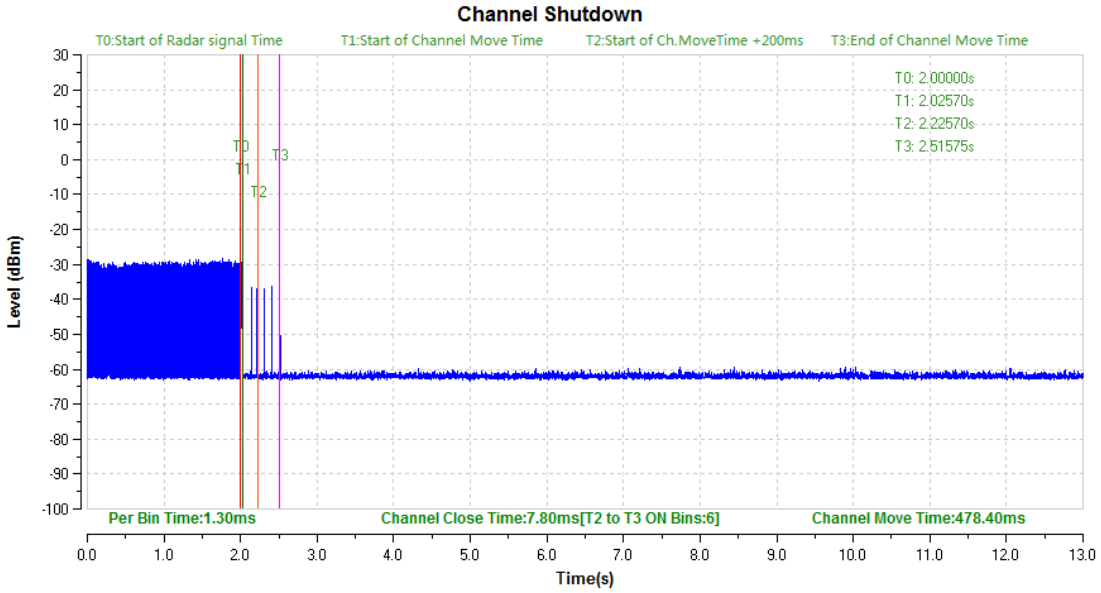
11.9 RESULT OF CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD FOR CLIENT BEACON TEST

BW/ Channel	Maximum EIRP Power(dBm)	Test Item	Test Result	Limit	Result
40MHz/ 5310MHz	12.50	Channel Move Time	429.00ms	＜10s	PASS
		Channel Closing Transmission Time	9.10ms	＜60ms	PASS
40MHz/ 5510MHz	12.00	Channel Move Time	478.40ms	＜10s	PASS
		Channel Closing Transmission Time	7.80ms	＜60ms	PASS

40MHz/5310MHz
Band 2A Channel Move Time& Channel Closing Transmission Time



40MHz/5510MHz
Band 2C Channel Move Time& Channel Closing Transmission Time



12. ANTENNA REQUIREMENT

12.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

12.2 EUT ANTENNA

The EUT antenna is permanent attached PIFA antenna(antenna gain:0.8dBi). It comply with the standard requirement.

END OF REPORT