

## Appendix E): Band Edge Measurements

### Result Table

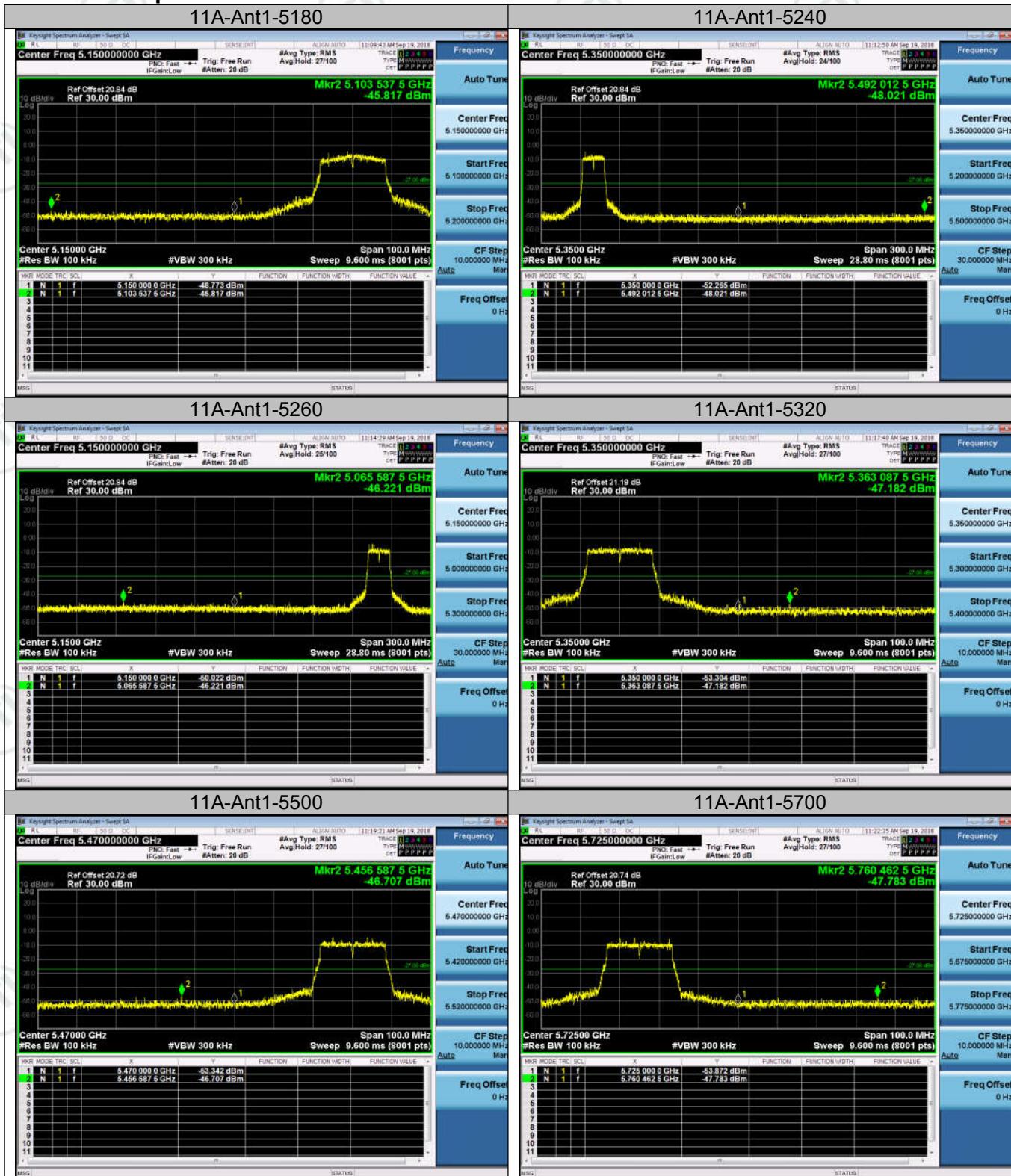
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
11A	Ant1	5180	-45.817		PASS
11A	Ant1	5240	-48.021		PASS
11A	Ant1	5260	-46.221		PASS
11A	Ant1	5320	-47.182		PASS
11A	Ant1	5500	-46.707		PASS
11A	Ant1	5700	-47.783		PASS
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			Below 5715	5715-5725	
11A	Ant1	5745	-47.483	-46.286	PASS
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			5850-5860	Above 5860	
11A	Ant1	5825	-47.654	-46.317	PASS

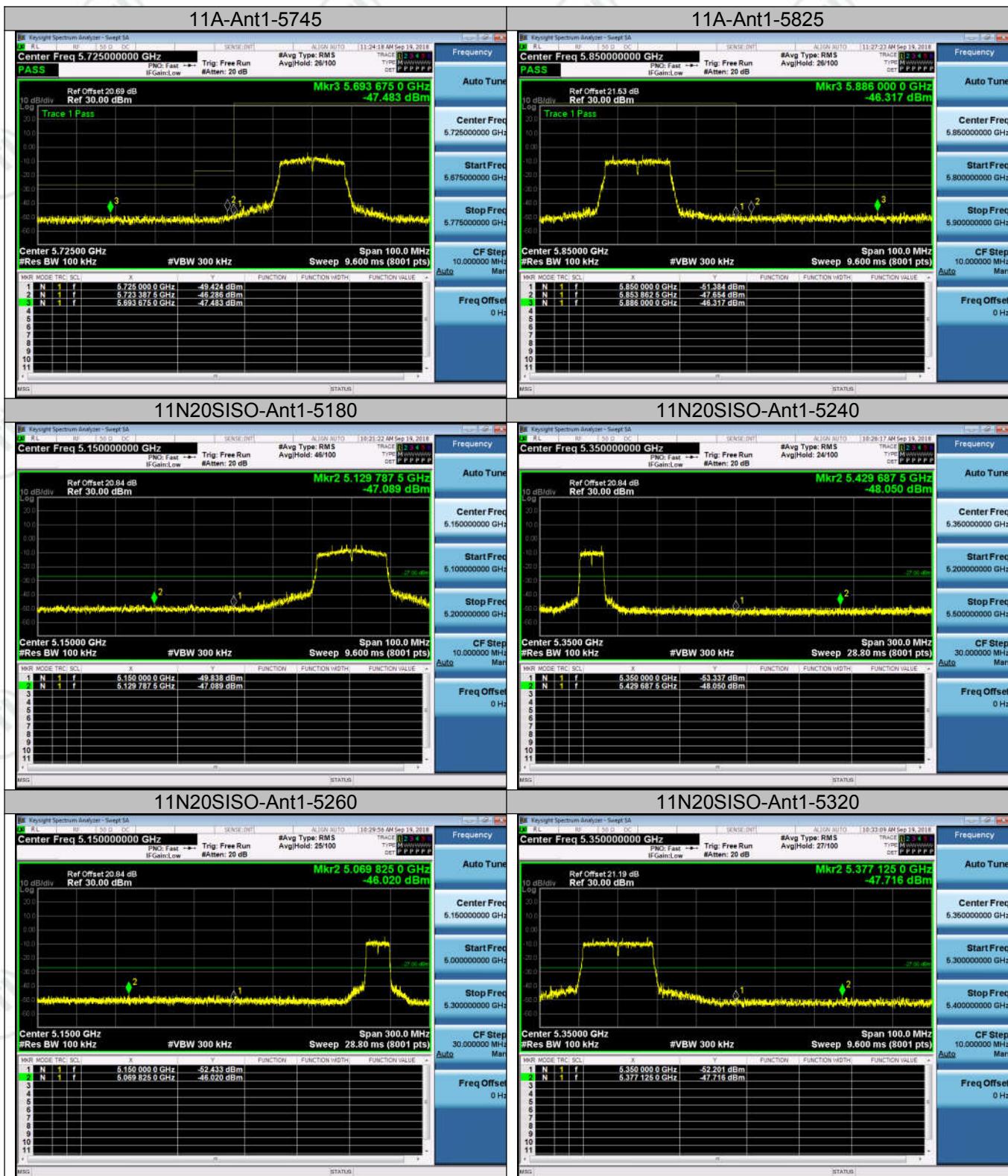
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
11N20SISO	Ant1	5180	-47.089		PASS
11N20SISO	Ant1	5240	-48.05		PASS
11N20SISO	Ant1	5260	-46.02		PASS
11N20SISO	Ant1	5320	-47.716		PASS
11N20SISO	Ant1	5500	-46.22		PASS
11N20SISO	Ant1	5700	-47.71		PASS
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			Below 5715	5715-5725	
11N20SISO	Ant1	5745	-48.65	-47.289	PASS
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			5850-5860	Above 5860	
11N20SISO	Ant1	5825	-46.902	-46.835	PASS

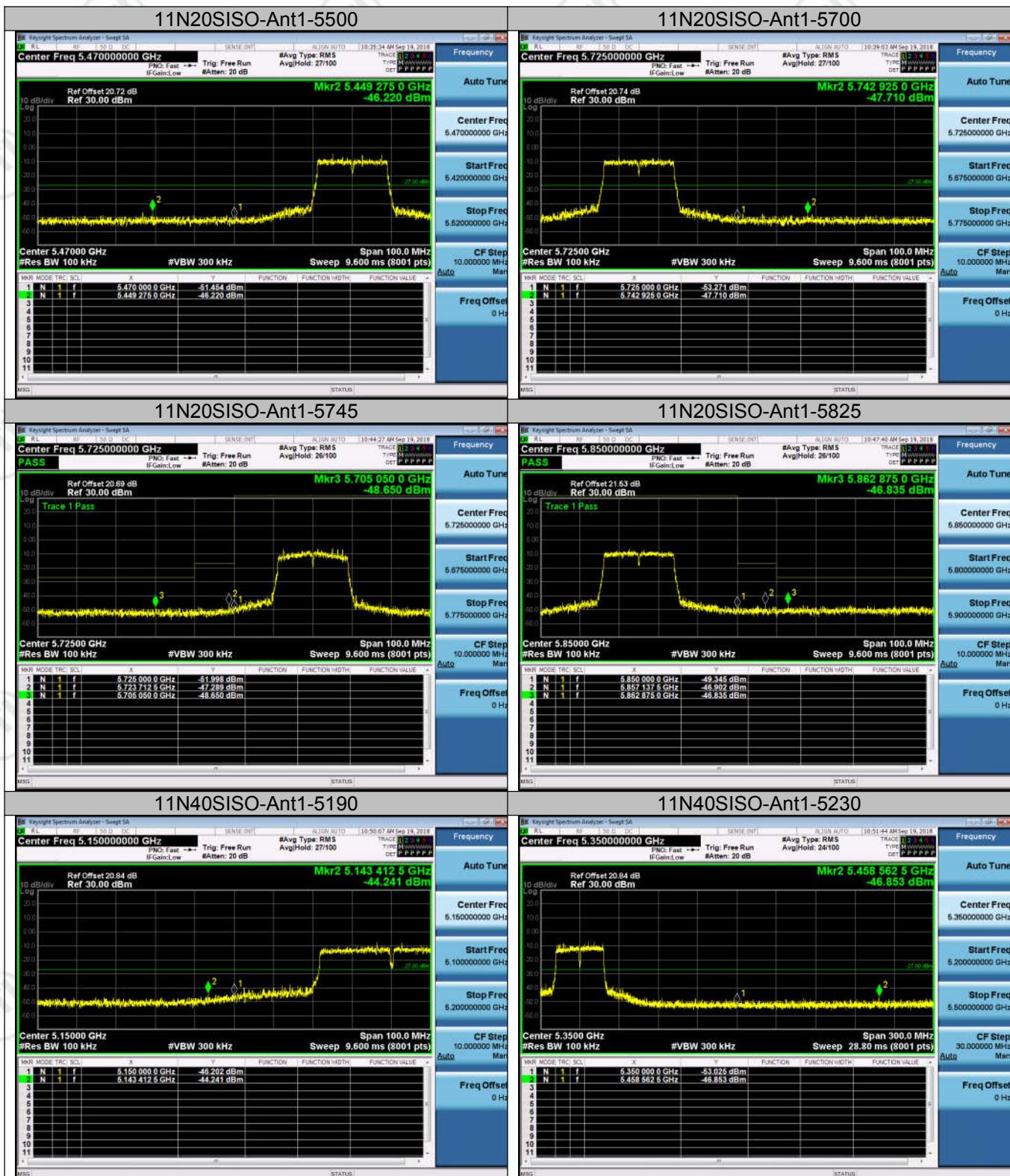
Test Mode	Antenna	Channel	Max.Level [dBm]	Verdict
11N40SISO	Ant1	5190	-44.241	PASS
11N40SISO	Ant1	5230	-46.853	PASS
11N40SISO	Ant1	5270	-45.502	PASS
11N40SISO	Ant1	5310	-47.115	PASS
11N40SISO	Ant1	5510	-47.307	PASS
11N40SISO	Ant1	5670	-48.986	PASS

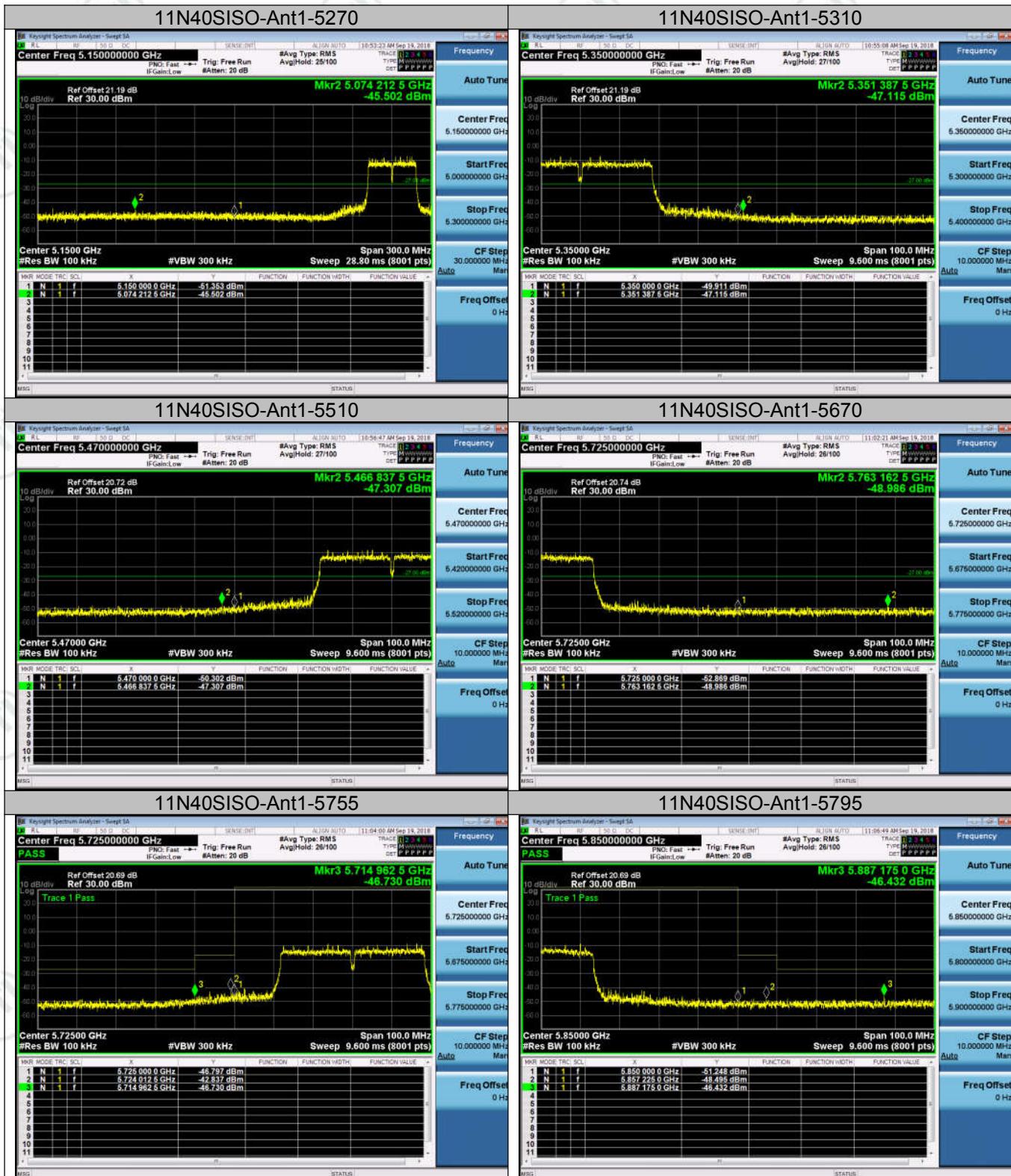
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			Below 5715	5715-5725	
11N40SISO	Ant1	5755	-46.73	-42.837	PASS
Test Mode	Antenna	Channel	Max.Level [dBm]		Verdict
			5850-5860	Above 5860	
11N40SISO	Ant1	5795	-48.495	-46.432	PASS

### Test Graph









## Appendix F): Frequency Stability

### Frequency Error vs. Voltage:

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11A	Ant1	5180	TN	VL	5180.04	7.722008	PASS
			TN	VN	5180.04	7.722008	PASS
			TN	VH	5180.08	15.444015	PASS
11A	Ant1	5200	TN	VL	5200	0	PASS
			TN	VN	5200.04	7.692308	PASS
			TN	VH	5199.98	-3.846154	PASS
11A	Ant1	5240	TN	VL	5240.06	11.450382	PASS
			TN	VN	5240.1	19.083969	PASS
			TN	VH	5239.98	-3.816794	PASS
11A	Ant1	5260	TN	VL	5260.06	11.406844	PASS
			TN	VN	5259.98	-3.802281	PASS
			TN	VH	5260.04	7.604563	PASS
11A	Ant1	5280	TN	VL	5279.96	-7.575758	PASS
			TN	VN	5280.08	15.151515	PASS
			TN	VH	5280.04	7.575758	PASS
11A	Ant1	5320	TN	VL	5319.96	-7.518797	PASS
			TN	VN	5320.02	3.759398	PASS
			TN	VH	5320.06	11.278195	PASS
11A	Ant1	5500	TN	VL	5499.98	-3.636364	PASS
			TN	VN	5500	0	PASS
			TN	VH	5500.08	14.545455	PASS
11A	Ant1	5580	TN	VL	5579.94	-10.752688	PASS
			TN	VN	5579.96	-7.168459	PASS
			TN	VH	5580.06	10.752688	PASS
11A	Ant1	5700	TN	VL	5699.96	-7.017544	PASS
			TN	VN	5699.92	-14.035088	PASS
			TN	VH	5700.04	7.017544	PASS
11A	Ant1	5745	TN	VL	5745	0	PASS
			TN	VN	5744.94	-10.443864	PASS
			TN	VH	5745.02	3.481288	PASS

11A	Ant1	5785	TN	VL	5784.94	-10.371651	PASS
			TN	VN	5785.06	10.371651	PASS
			TN	VH	5784.92	-13.828868	PASS
11A	Ant1	5825	TN	VL	5825.02	3.433476	PASS
			TN	VN	5825.04	6.866953	PASS
			TN	VH	5824.96	-6.866953	PASS

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11N20	Ant1	5180	TN	VL	5180.06	11.583012	PASS
			TN	VN	5180.02	3.861004	PASS
			TN	VH	5180	0	PASS
11N20	Ant1	5200	TN	VL	5200.04	7.692308	PASS
			TN	VN	5199.96	-7.692308	PASS
			TN	VH	5199.94	-11.538462	PASS
11N20	Ant1	5240	TN	VL	5240.1	19.083969	PASS
			TN	VN	5240.04	7.633588	PASS
			TN	VH	5240.04	7.633588	PASS
11N20	Ant1	5260	TN	VL	5259.94	-11.406844	PASS
			TN	VN	5260.02	3.802281	PASS
			TN	VH	5260.02	3.802281	PASS
11N20	Ant1	5280	TN	VL	5279.96	-7.575758	PASS
			TN	VN	5280.1	18.939394	PASS
			TN	VH	5280.1	18.939394	PASS
11N20	Ant1	5320	TN	VL	5320.08	15.037594	PASS
			TN	VN	5319.98	-3.759398	PASS
			TN	VH	5320	0	PASS
11N20	Ant1	5500	TN	VL	5499.98	-3.636364	PASS
			TN	VN	5499.96	-7.272727	PASS
			TN	VH	5500.02	3.636364	PASS
11N20	Ant1	5580	TN	VL	5580	0	PASS
			TN	VN	5580.02	3.584229	PASS
			TN	VH	5580	0	PASS
11N20	Ant1	5700	TN	VL	5700.04	7.017544	PASS

			TN	VN	5700.08	14.035088	PASS
			TN	VH	5700.04	7.017544	PASS
11N20	Ant1	5745	TN	VL	5745.06	10.443864	PASS
			TN	VN	5744.94	0	PASS
			TN	VH	5745.02	3.481288	PASS

11N20	Ant1	5785	TN	VL	5785	0	PASS
			TN	VN	5784.96	-6.914434	PASS
			TN	VH	5784.96	-6.914434	PASS
11N20	Ant1	5825	TN	VL	5825.04	6.866953	PASS
			TN	VN	5825.04	6.866953	PASS
			TN	VH	5824.96	-6.866953	PASS

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11N40	Ant1	5190	TN	VL	5190.04	7.707129	PASS
			TN	VN	5190.08	15.414258	PASS
			TN	VH	5190.04	7.707129	PASS
11N40	Ant1	5230	TN	VL	5230.04	7.648184	PASS
			TN	VN	5230.04	7.648184	PASS
			TN	VH	5229.96	-7.648184	PASS
11N40	Ant1	5270	TN	VL	5270.08	15.180266	PASS
			TN	VN	5269.96	-7.590133	PASS
			TN	VH	5270	0	PASS
11N40	Ant1	5310	TN	VL	5310.04	7.532957	PASS
			TN	VN	5310	0	PASS
			TN	VH	5310	0	PASS
11N40	Ant1	5510	TN	VL	5509.96	-7.259528	PASS
			TN	VN	5510.04	7.259528	PASS
			TN	VH	5510.04	7.259528	PASS
11N40	Ant1	5550	TN	VL	5550.04	7.207207	PASS
			TN	VN	5550.04	7.207207	PASS
			TN	VH	5550.04	7.207207	PASS
11N40	Ant1	5670	TN	VL	5670	0	PASS

Report No. : EED32K00243604

Page 55 of 227

			TN	VN	5670.04	7.054674	PASS
			TN	VH	5670	0	PASS
11N40	Ant1	5755	TN	VL	5755.08	13.900956	PASS
			TN	VN	5755	0	PASS
			TN	VH	5755.04	6.950478	PASS
11N40	Ant1	5795	TN	VL	5795.08	13.805004	PASS
			TN	VN	5795.08	13.805004	PASS
			TN	VH	5794.96	-6.902502	PASS

**Frequency Error vs. Temperature:**

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11A	Ant1	5180	50	VN	5180.08	15.444015	PASS
			40	VN	5180.04	7.722008	PASS
			30	VN	5179.9	-19.305019	PASS
			20	VN	5180.04	7.722008	PASS
			10	VN	5180.08	15.444015	PASS
			0	VN	5180.04	7.722008	PASS
			-10	VN	5180.04	7.722008	PASS
			-20	VN	5180.04	7.722008	PASS
			-30	VN	5180.06	11.583012	PASS
11A	Ant1	5200	50	VN	5200.1	19.230769	PASS
			40	VN	5200.02	3.846154	PASS
			30	VN	5199.94	-11.538462	PASS
			20	VN	5200.06	11.538462	PASS
			10	VN	5200.02	3.846154	PASS
			0	VN	5200.04	7.692308	PASS
			-10	VN	5200.02	3.846154	PASS
			-20	VN	5200.06	11.538462	PASS
			-30	VN	5200.02	3.846154	PASS
11A	Ant1	5240	50	VN	5240.06	11.450382	PASS
			40	VN	5239.94	-11.450382	PASS
			30	VN	5240.02	3.816794	PASS
			20	VN	5240.06	11.450382	PASS
			10	VN	5240.02	3.816794	PASS
			0	VN	5240.04	7.633588	PASS
			-10	VN	5240.04	7.633588	PASS
			-20	VN	5240.08	15.267176	PASS
			-30	VN	5239.96	-7.633588	PASS
11A	Ant1	5260	50	VN	5260	0	PASS
			40	VN	5259.96	-7.604563	PASS
			30	VN	5259.96	-7.604563	PASS
			20	VN	5259.98	-3.802281	PASS

			10	VN	5259.94	-11.406844	PASS
			0	VN	5259.9	-19.011407	PASS
			-10	VN	5259.9	-19.011407	PASS
			-20	VN	5260.02	3.802281	PASS
			-30	VN	5260.04	7.604563	PASS
11A	Ant1	5280	50	VN	5280	0	PASS
			40	VN	5280.06	11.363636	PASS
			30	VN	5280.08	15.151515	PASS
			20	VN	5280.02	3.787879	PASS
			10	VN	5280.04	7.575758	PASS
			0	VN	5280.06	11.363636	PASS
			-10	VN	5280.06	11.363636	PASS
			-20	VN	5280.02	3.787879	PASS
			-30	VN	5280.08	15.151515	PASS
			50	VN	5320.08	15.037594	PASS
11A	Ant1	5320	40	VN	5320.02	3.759398	PASS
			30	VN	5320.06	11.278195	PASS
			20	VN	5320.1	18.796992	PASS
			10	VN	5319.96	-7.518797	PASS
			0	VN	5320.08	15.037594	PASS
			-10	VN	5320.02	3.759398	PASS
			-20	VN	5320.1	18.796992	PASS
			-30	VN	5320.1	18.796992	PASS
			50	VN	5500.02	3.636364	PASS
			40	VN	5500.06	10.909091	PASS
11A	Ant1	5500	30	VN	5500	0	PASS
			20	VN	5499.96	-7.272727	PASS
			10	VN	5500.02	3.636364	PASS
			0	VN	5500	0	PASS
			-10	VN	5500.02	3.636364	PASS
			-20	VN	5500.04	7.272727	PASS
			-30	VN	5499.96	-7.272727	PASS
			50	VN	5579.94	-10.752688	PASS

			40	VN	5580.04	7.168459	PASS
			30	VN	5580.1	17.921147	PASS
			20	VN	5580.1	17.921147	PASS
			10	VN	5579.98	-3.584229	PASS
			0	VN	5580.06	10.752688	PASS
			-10	VN	5579.92	-14.336918	PASS
			-20	VN	5580.02	3.584229	PASS
			-30	VN	5580.02	3.584229	PASS
11A	Ant1	5700	50	VN	5700.08	14.035088	PASS
			40	VN	5700.02	3.508772	PASS
			30	VN	5700.04	7.017544	PASS
			20	VN	5700.04	7.017544	PASS
			10	VN	5700.06	10.526316	PASS
			0	VN	5699.98	-3.508772	PASS
			-10	VN	5699.98	-3.508772	PASS
			-20	VN	5699.98	-3.508772	PASS
			-30	VN	5700	0	PASS
11A	Ant1	5745	50	VN	5745.02	3.481288	PASS
			40	VN	5745	0	PASS
			30	VN	5744.98	-3.481288	PASS
			20	VN	5745.1	17.40644	PASS
			10	VN	5745.04	6.962576	PASS
			0	VN	5745.1	17.40644	PASS
			-10	VN	5745	0	PASS
			-20	VN	5744.96	-6.962576	PASS
			-30	VN	5745	0	PASS
11A	Ant1	5785	50	VN	5785.08	13.828868	PASS
			40	VN	5784.98	-3.457217	PASS
			30	VN	5785	0	PASS
			20	VN	5784.94	-10.371651	PASS
			10	VN	5784.96	-6.914434	PASS
			0	VN	5785	0	PASS
			-10	VN	5785.02	3.457217	PASS

			-20	VN	5785.02	3.457217	PASS
			-30	VN	5784.92	-13.828868	PASS
11A	Ant1	5825	50	VN	5825.02	3.433476	PASS
			40	VN	5824.98	-3.433476	PASS
			30	VN	5825.1	17.167382	PASS
			20	VN	5825.06	10.300429	PASS
			10	VN	5825	0	PASS
			0	VN	5824.98	-3.433476	PASS
			-10	VN	5825.02	3.433476	PASS
			-20	VN	5825.04	6.866953	PASS
			-30	VN	5825.04	6.866953	PASS

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11N20	Ant1	5180	50	VN	5180.06	11.583012	PASS
			40	VN	5180	0	PASS
			30	VN	5180.02	3.861004	PASS
			20	VN	5180	0	PASS
			10	VN	5180.04	7.722008	PASS
			0	VN	5180.06	11.583012	PASS
			-10	VN	5180.02	3.861004	PASS
			-20	VN	5180.1	19.305019	PASS
			-30	VN	5180.02	3.861004	PASS
11N20	Ant1	5200	50	VN	5200	0	PASS
			40	VN	5200	0	PASS
			30	VN	5199.96	-7.692308	PASS
			20	VN	5200.02	3.846154	PASS
			10	VN	5200.02	3.846154	PASS
			0	VN	5200	0	PASS
			-10	VN	5200	0	PASS
			-20	VN	5199.98	-3.846154	PASS
			-30	VN	5200.02	3.846154	PASS
11N20	Ant1	5240	50	VN	5240.04	7.633588	PASS
			40	VN	5240.08	15.267176	PASS

			30	VN	5239.98	-3.816794	PASS
			20	VN	5240.08	15.267176	PASS
			10	VN	5240.06	11.450382	PASS
			0	VN	5239.98	-3.816794	PASS
			-10	VN	5240.1	19.083969	PASS
			-20	VN	5240.06	11.450382	PASS
			-30	VN	5239.98	-3.816794	PASS
11N20	Ant1	5260	50	VN	5259.98	-3.802281	PASS
			40	VN	5259.96	-7.604563	PASS
			30	VN	5260.06	11.406844	PASS
			20	VN	5260.06	11.406844	PASS
			10	VN	5260	0	PASS
			0	VN	5259.96	-7.604563	PASS
			-10	VN	5260.02	3.802281	PASS
			-20	VN	5260.02	3.802281	PASS
			-30	VN	5260.02	3.802281	PASS
			50	VN	5280.04	7.575758	PASS
11N20	Ant1	5280	40	VN	5280.08	15.151515	PASS
			30	VN	5280.02	3.787879	PASS
			20	VN	5279.92	-15.151515	PASS
			10	VN	5279.96	-7.575758	PASS
			0	VN	5280	0	PASS
			-10	VN	5279.96	-7.575758	PASS
			-20	VN	5280.06	11.363636	PASS
			-30	VN	5280.1	18.939394	PASS
			50	VN	5320	0	PASS
			40	VN	5320.04	7.518797	PASS
11N20	Ant1	5320	30	VN	5320.02	3.759398	PASS
			20	VN	5319.98	-3.759398	PASS
			10	VN	5320	0	PASS
			0	VN	5320.04	7.518797	PASS
			-10	VN	5319.92	-15.037594	PASS
			-20	VN	5319.98	-3.759398	PASS

			-30	VN	5320.08	15.037594	PASS
11N20	Ant1	5500	50	VN	5500	0	PASS
			40	VN	5500	0	PASS
			30	VN	5500	0	PASS
			20	VN	5500.1	18.181818	PASS
			10	VN	5500.04	7.272727	PASS
			0	VN	5499.98	-3.636364	PASS
			-10	VN	5500	0	PASS
			-20	VN	5500.04	7.272727	PASS
			-30	VN	5500	0	PASS
11N20	Ant1	5580	50	VN	5579.96	-7.168459	PASS
			40	VN	5580.02	3.584229	PASS
			30	VN	5580	0	PASS
			20	VN	5579.98	-3.584229	PASS
			10	VN	5579.96	-7.168459	PASS
			0	VN	5579.98	-3.584229	PASS
			-10	VN	5580.02	3.584229	PASS
			-20	VN	5579.98	-3.584229	PASS
			-30	VN	5579.92	-14.336918	PASS
11N20	Ant1	5700	50	VN	5700.04	7.017544	PASS
			40	VN	5700.02	3.508772	PASS
			30	VN	5699.94	-10.526316	PASS
			20	VN	5699.98	-3.508772	PASS
			10	VN	5699.96	-7.017544	PASS
			0	VN	5700.02	3.508772	PASS
			-10	VN	5700.04	7.017544	PASS
			-20	VN	5699.98	-3.508772	PASS
			-30	VN	5700.1	17.54386	PASS
11N20	Ant1	5745	50	VN	5745.06	10.443864	PASS
			40	VN	5745.08	13.925152	PASS
			30	VN	5745	0	PASS
			20	VN	5745.02	3.481288	PASS
			10	VN	5745.06	10.443864	PASS

			0	VN	5745	0	PASS
			-10	VN	5744.94	-10.443864	PASS
			-20	VN	5745.06	10.443864	PASS
			-30	VN	5744.98	-3.481288	PASS
11N20	Ant1	5785	50	VN	5784.96	-6.914434	PASS
			40	VN	5785.02	3.457217	PASS
			30	VN	5785.02	3.457217	PASS
			20	VN	5785	0	PASS
			10	VN	5785.08	13.828868	PASS
			0	VN	5785	0	PASS
			-10	VN	5785.04	6.914434	PASS
			-20	VN	5785	0	PASS
			-30	VN	5785	0	PASS
			50	VN	5825	0	PASS
11N20	Ant1	5825	40	VN	5825.08	13.733906	PASS
			30	VN	5825	0	PASS
			20	VN	5824.94	-10.300429	PASS
			10	VN	5825.02	3.433476	PASS
			0	VN	5825	0	PASS
			-10	VN	5825.02	3.433476	PASS
			-20	VN	5824.96	-6.866953	PASS
			-30	VN	5825.04	6.866953	PASS

Test Mode	Antenna	Channel	Temp.	Volt.	Freq.Error(MHz)	Freq.vs.rated(ppm)	Verdict
11N40	Ant1	5190	50	VN	5189.96	-7.707129	PASS
			40	VN	5190.04 cfq11n40+5015190nn	7.707129	PASS
			30	VN	5190.08	15.414258	PASS
			20	VN	5190	0	PASS
			10	VN	5190	0	PASS
			0	VN	5190	0	PASS
			-10	VN	5190.04	7.707129	PASS
			-20	VN	5190	0	PASS

			-30	VN	5190.04	7.707129	PASS
11N40	Ant1	5230	50	VN	5230.04	7.648184	PASS
			40	VN	5230	0	PASS
			30	VN	5230.08	15.296367	PASS
			20	VN	5230.04	7.648184	PASS
			10	VN	5230	0	PASS
			0	VN	5230.04	7.648184	PASS
			-10	VN	5230.08	15.296367	PASS
			-20	VN	5230.04	7.648184	PASS
			-30	VN	5230.04	7.648184	PASS
11N40	Ant1	5270	50	VN	5269.92	-15.180266	PASS
			40	VN	5269.96	-7.590133	PASS
			30	VN	5270.08	15.180266	PASS
			20	VN	5270.08	15.180266	PASS
			10	VN	5270.04	7.590133	PASS
			0	VN	5270.04	7.590133	PASS
			-10	VN	5270.08	15.180266	PASS
			-20	VN	5270.08	15.180266	PASS
			-30	VN	5270.04	7.590133	PASS
11N40	Ant1	5310	50	VN	5310	0	PASS
			40	VN	5310	0	PASS
			30	VN	5309.96	-7.532957	PASS
			20	VN	5309.96	-7.532957	PASS
			10	VN	5310.04	7.532957	PASS
			0	VN	5310.08	15.065913	PASS
			-10	VN	5309.96	-7.532957	PASS
			-20	VN	5310	0	PASS
			-30	VN	5310	0	PASS
11N40	Ant1	5510	50	VN	5510.08	14.519056	PASS
			40	VN	5510.04	7.259528	PASS
			30	VN	5510	0	PASS
			20	VN	5510.04	7.259528	PASS
			10	VN	5510.08	14.519056	PASS

			0	VN	5509.96	-7.259528	PASS
			-10	VN	5510.08	14.519056	PASS
			-20	VN	5510	0	PASS
			-30	VN	5510.04	7.259528	PASS
11N40	Ant1	5550	50	VN	5550.04	7.207207	PASS
			40	VN	5550	0	PASS
			30	VN	5549.96	-7.207207	PASS
			20	VN	5549.92	-14.414414	PASS
			10	VN	5550	0	PASS
			0	VN	5550.04	7.207207	PASS
			-10	VN	5550.04	7.207207	PASS
			-20	VN	5549.92	-14.414414	PASS
			-30	VN	5550.04	7.207207	PASS
			50	VN	5670.04	7.054674	PASS
11N40	Ant1	5670	40	VN	5670.08	14.109347	PASS
			30	VN	5670	0	PASS
			20	VN	5670.04	7.054674	PASS
			10	VN	5670.04	7.054674	PASS
			0	VN	5670.04	7.054674	PASS
			-10	VN	5669.92	-14.109347	PASS
			-20	VN	5670.04	7.054674	PASS
			-30	VN	5670	0	PASS
			50	VN	5755	0	PASS
			40	VN	5755.04	6.950478	PASS
11N40	Ant1	5755	30	VN	5755.04	6.950478	PASS
			20	VN	5755	0	PASS
			10	VN	5755.08	13.900956	PASS
			0	VN	5755.04	6.950478	PASS
			-10	VN	5754.96	-6.950478	PASS
			-20	VN	5755.04	6.950478	PASS
			-30	VN	5755.04	6.950478	PASS
			50	VN	5795	0	PASS
			40	VN	5795	0	PASS

Report No. : EED32K00243604

Page 65 of 227

			30	VN	5795.04	6.902502	PASS
			20	VN	5795.04	6.902502	PASS
			10	VN	5794.96	-6.902502	PASS
			0	VN	5795.08	13.805004	PASS
			-10	VN	5795.08	13.805004	PASS
			-20	VN	5795	0	PASS
			-30	VN	5795.04	6.902502	PASS

## Appendix G): Antenna Requirement

**15.203 requirement:**

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

**15.407(a)(1) (2) requirement:**

The conducted output power limit specified in paragraph (a) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (a) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**EUT Antenna:**

The antenna is PFC Antenna and no consideration of replacement. The best case gain of the 5G WiFi antenna is 0.43dBi.



## Appendix H): Operation in the absence of information to the transmit

### 15.407(c) requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

### Operation in the absence of information to the transmit

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (manufacturer declare )

## Appendix I): AC Power Line Conducted Emission

Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.																
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dB<math>\mu</math>V)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.          NOTE : The lower limit is applicable at the transition frequency</p>			Frequency range (MHz)	Limit (dB $\mu$ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dB $\mu$ V)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															

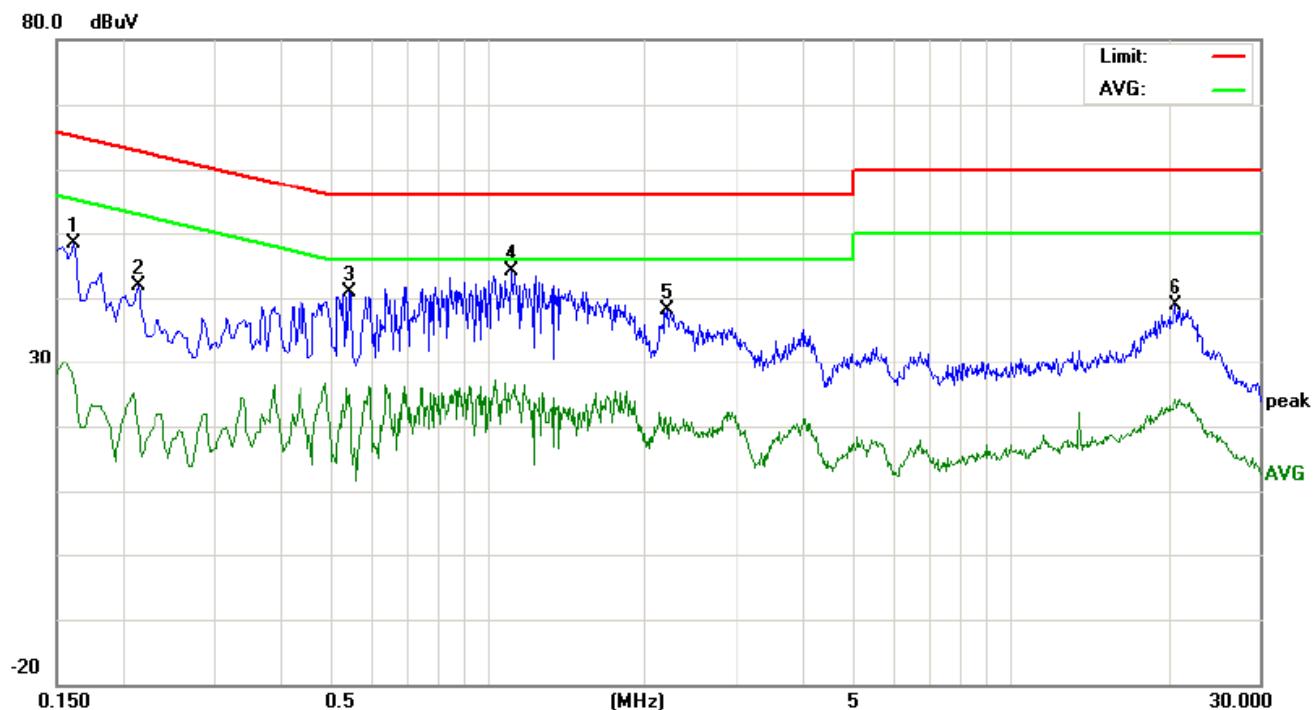
### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

**Product** : Handheld UHF Reader  
**Temperature** : 22°C  
**Phase** : L

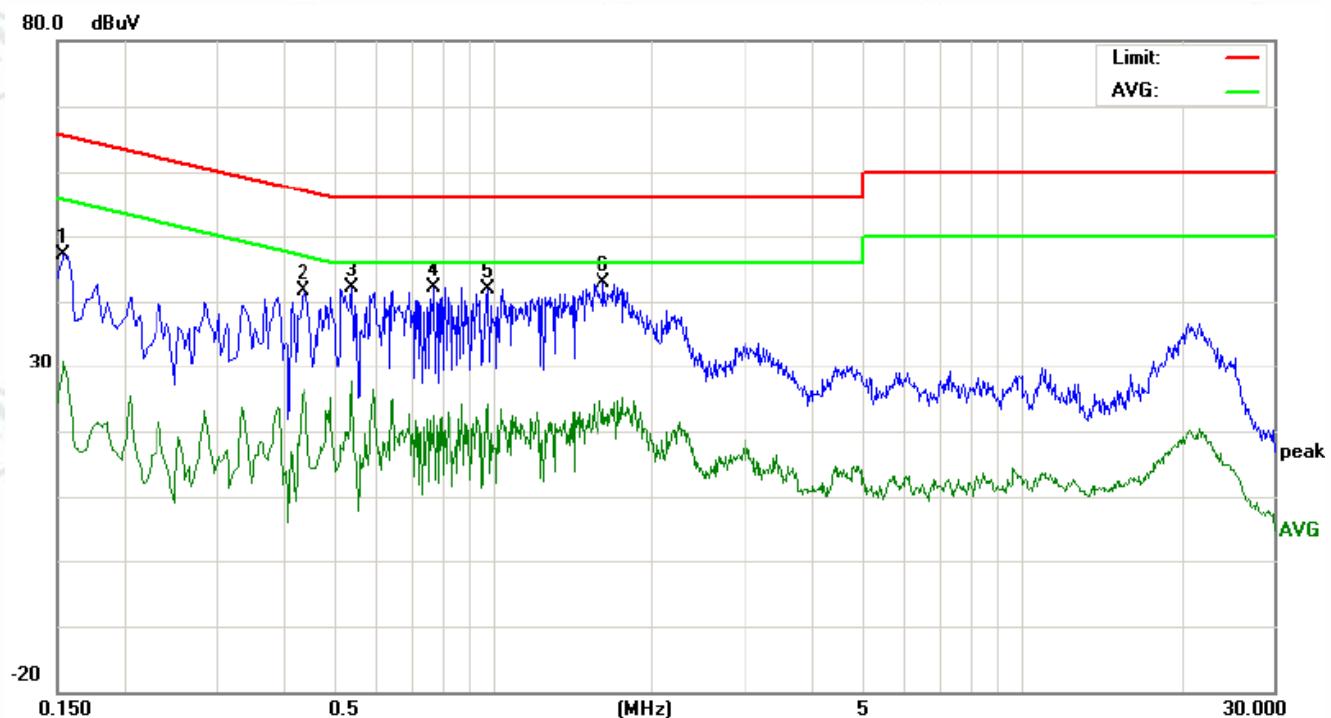
**Model/Type reference** : C76  
**Humidity** : 53%



No.	Freq. MHz	Reading Level (dBuV)			Correct Factor			Measurement (dBuV)			Limit (dBuV)			Margin (dB)		
		Peak	QP	AVG	dB	peak	QP	AVG	QP	AVG	QP	AVG	P/F	Comment		
1	0.1620	38.59	35.26	17.60	9.75	48.34	45.01	27.35	65.36	55.36	-20.35	-28.01	P			
2	0.2140	32.11	29.74	10.01	9.72	41.83	39.46	19.73	63.04	53.04	-23.58	-33.31	P			
3	0.5460	31.05	28.55	15.11	9.73	40.78	38.28	24.84	56.00	46.00	-17.72	-21.16	P			
4	1.1140	34.37	31.24	15.04	9.72	44.09	40.96	24.76	56.00	46.00	-15.04	-21.24	P			
5	2.2060	28.33	25.39	9.56	9.71	38.04	35.10	19.27	56.00	46.00	-20.90	-26.73	P			
6	20.7380	28.77	25.84	14.01	10.08	38.85	35.92	24.09	60.00	50.00	-24.08	-25.91	P			

**Product** : Handheld UHF Reader  
**Temperature** : 22°C  
**Phase** : N

**Model/Type reference** : C76  
**Humidity** : 53%



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)			Margin (dB)		
		Peak	QP	AVG		peak	QP	Avg	QP	Avg	QP	Avg	P/F	Comment
1	0.1539	37.44	34.58	21.04	9.76	47.20	44.34	30.80	65.78	55.78	-21.44	-24.98	P	
2	0.4380	31.81	28.66	16.58	9.73	41.54	38.39	26.31	57.10	47.10	-18.71	-20.79	P	
3	0.5420	32.31	29.74	17.84	9.73	42.04	39.47	27.57	56.00	46.00	-16.53	-18.43	P	
4	0.7740	32.45	29.58	12.51	9.74	42.19	39.32	22.25	56.00	46.00	-16.68	-23.75	P	
5	0.9820	32.16	29.61	14.49	9.73	41.89	39.34	24.22	56.00	46.00	-16.66	-21.78	P	
6	1.6220	33.05	30.14	13.65	9.72	42.77	39.86	23.37	56.00	46.00	-16.14	-22.63	P	

Notes:

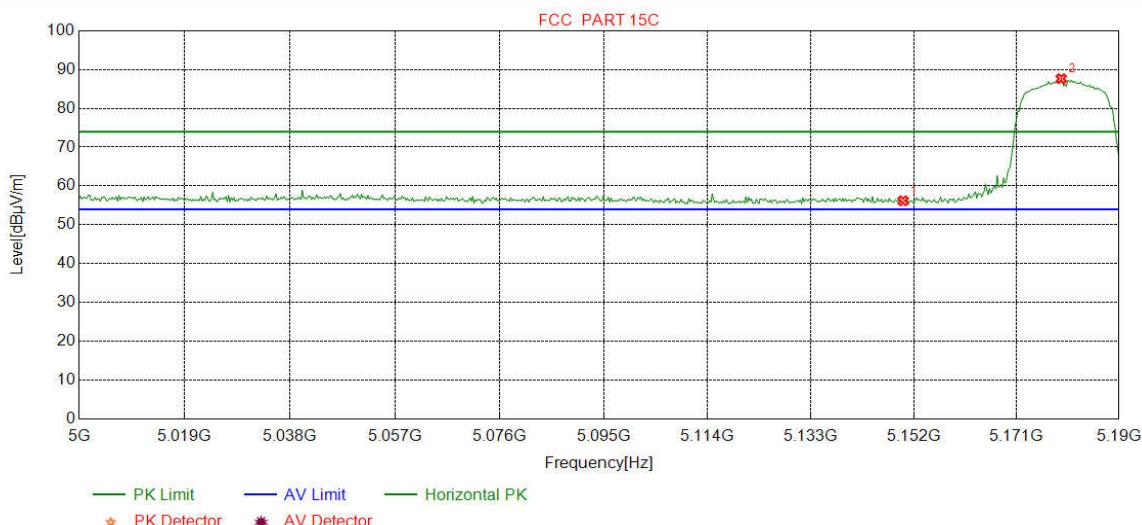
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

## Appendix J): Restricted bands around fundamental frequency (Radiated Emission)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark			
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak			
	Above 1GHz	Peak	1MHz	3MHz	Peak			
		Peak	1MHz	10Hz	Average			
Test Procedure:		<b>Below 1GHz test procedure as below:</b>						
		a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel						
		<b>Above 1GHz test procedure as below:</b>						
		g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre( Above 18GHz the distance is 1 meter and table is 1.5 metre). h. Test the EUT in the lowest channel , the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete.						
Limit:		Frequency	Limit (dB $\mu$ V/m @3cm)	Remark				
		30MHz-88MHz	40.0	Quasi-peak Value				
		88MHz-216MHz	43.5	Quasi-peak Value				
		216MHz-960MHz	46.0	Quasi-peak Value				
		960MHz-1GHz	54.0	Quasi-peak Value				
		Above 1GHz	54.0	Average Value				
			74.0	Peak Value				

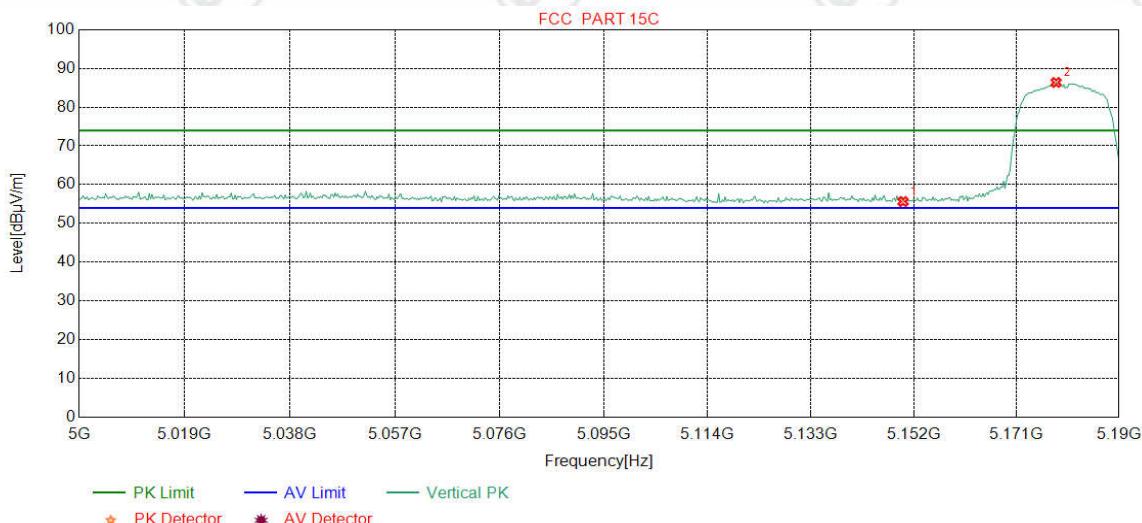
**Test plot as follows:**

Mode:	802.11 a(HT20) Transmitting	Channel:	5180
Remark:	Peak		



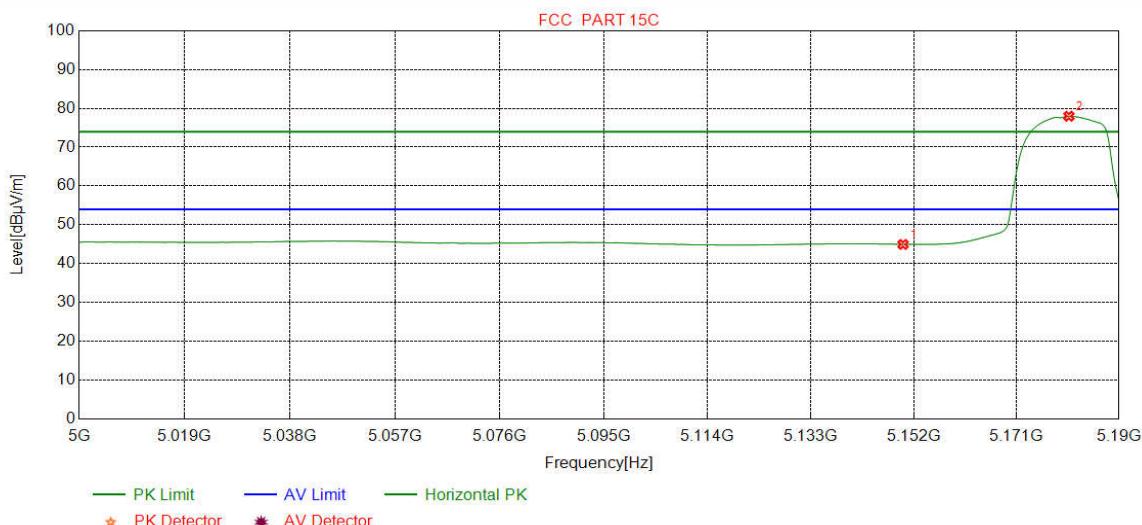
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	42.49	56.17	74.00	17.83	Pass	Horizontal
2	5179.2991	34.68	15.37	-35.97	73.58	87.66	74.00	-13.66	Pass	Horizontal

Mode:	802.11 a(HT20) Transmitting	Channel:	5180
Remark:	Peak		



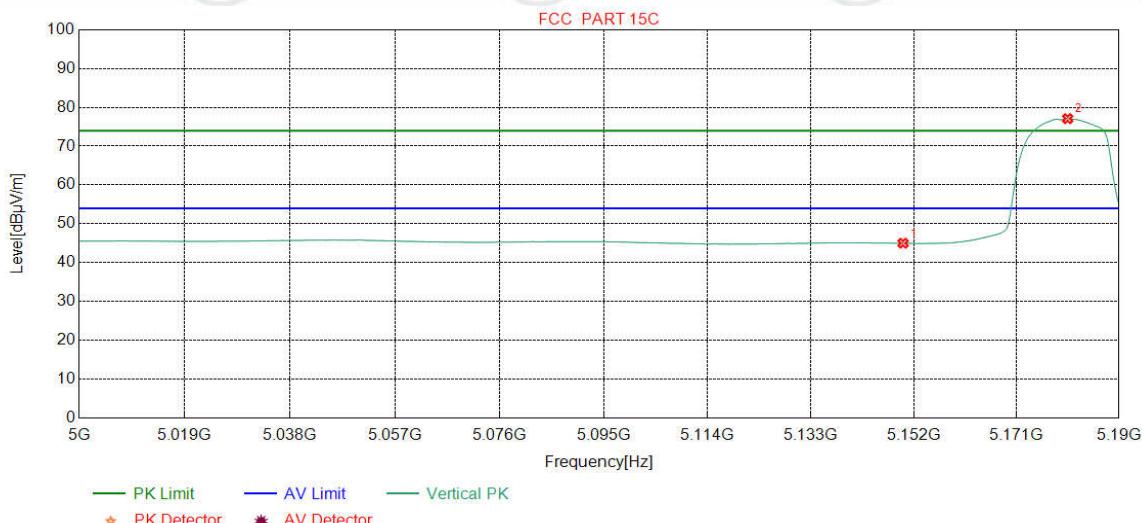
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	41.94	55.62	74.00	18.38	Pass	Vertical
2	5178.3479	34.68	15.36	-35.97	72.32	86.39	74.00	-12.39	Pass	Vertical

Mode:	802.11 a(HT20) Transmitting	Channel:	5180
Remark:	Average		



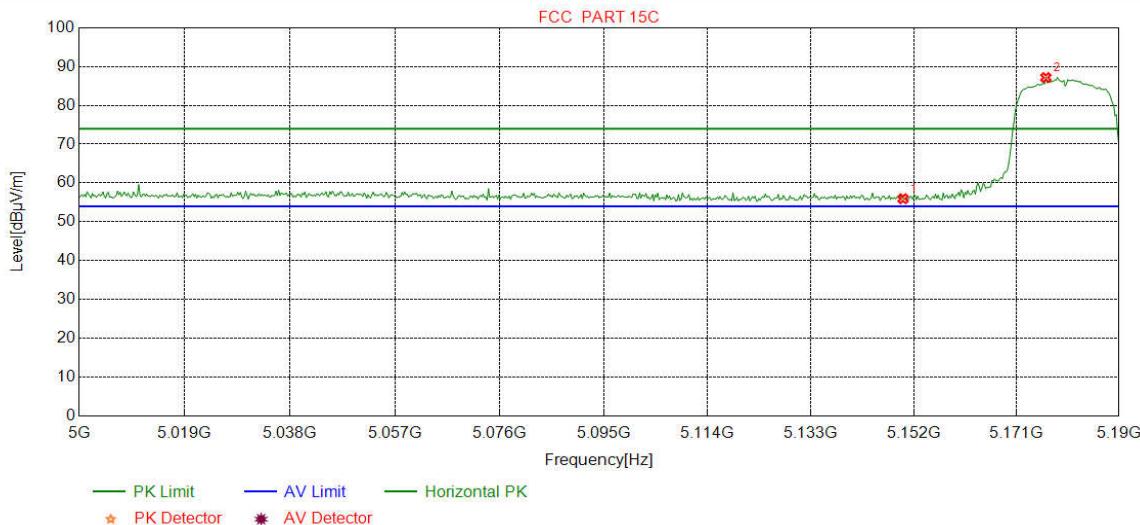
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.24	44.92	54.00	9.08	Pass	Horizontal
2	5180.7259	34.68	15.38	-35.96	63.89	77.99	54.00	-23.99	Pass	Horizontal

Mode:	802.11 a(HT20) Transmitting	Channel:	5180
Remark:	Average		



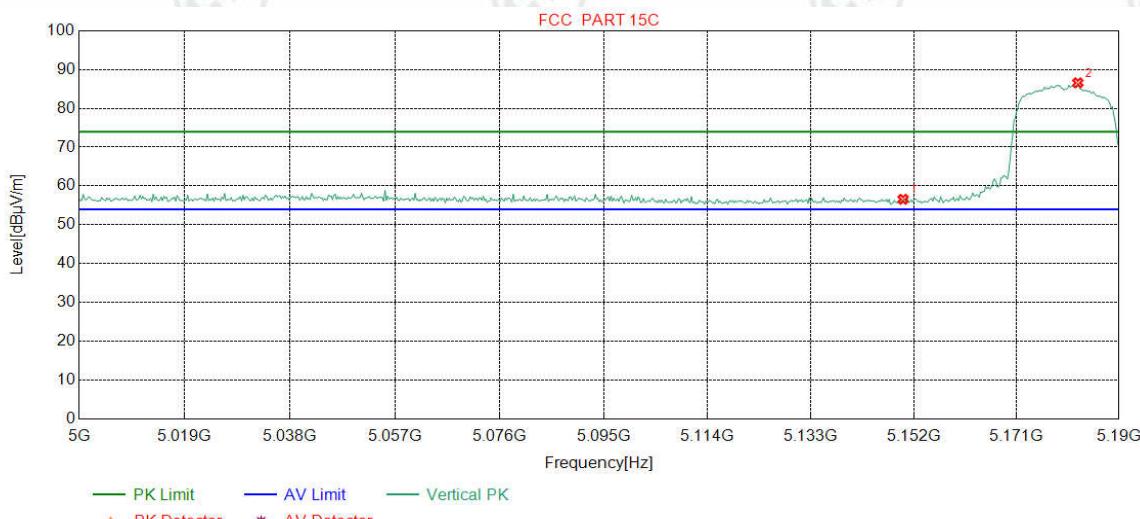
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.30	44.98	54.00	9.02	Pass	Vertical
2	5180.4881	34.68	15.38	-35.96	63.01	77.11	54.00	-23.11	Pass	Vertical

Mode:	802.11 n(HT20) Transmitting	Channel:	5180
Remark:	Peak		



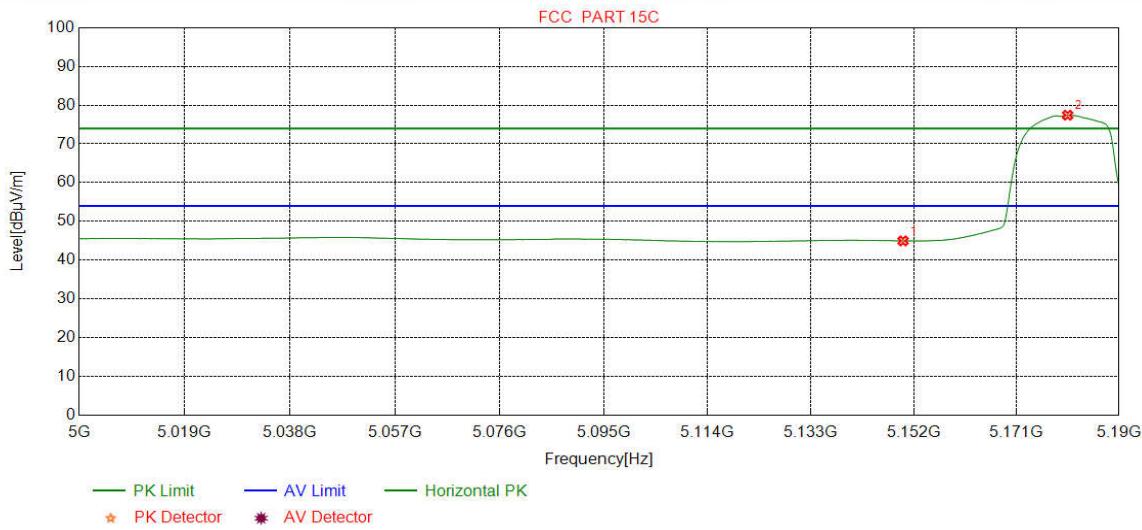
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	42.25	55.93	74.00	18.07	Pass	Horizontal
2	5176.4456	34.68	15.34	-35.98	73.14	87.18	74.00	-13.18	Pass	Horizontal

Mode:	802.11 n(HT20) Transmitting	Channel:	5180
Remark:	Peak		



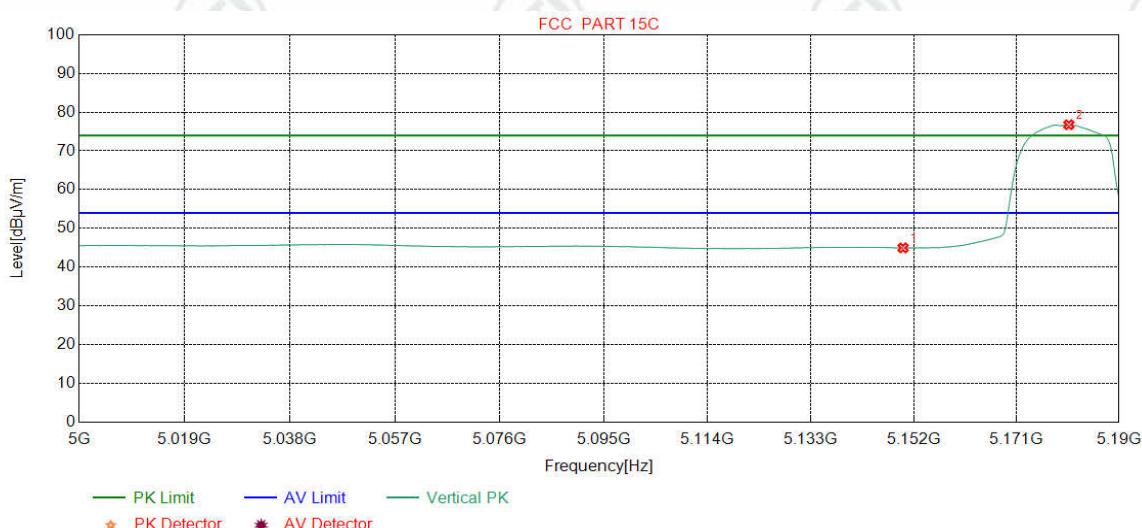
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	42.89	56.57	74.00	17.43	Pass	Vertical
2	5182.3905	34.68	15.40	-35.95	72.46	86.59	74.00	-12.59	Pass	Vertical

Mode:	802.11 n(HT20) Transmitting	Channel:	5180
Remark:	Average		



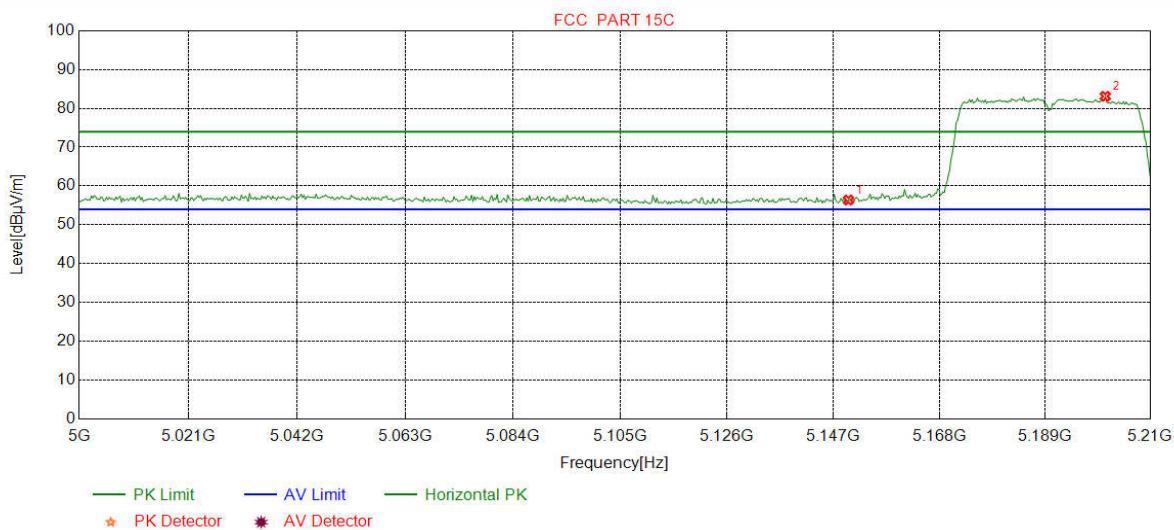
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.26	44.94	54.00	9.06	Pass	Horizontal
2	5180.4881	34.68	15.38	-35.96	63.32	77.42	54.00	-23.42	Pass	Horizontal

Mode:	802.11 n(HT20) Transmitting	Channel:	5180
Remark:	Average		



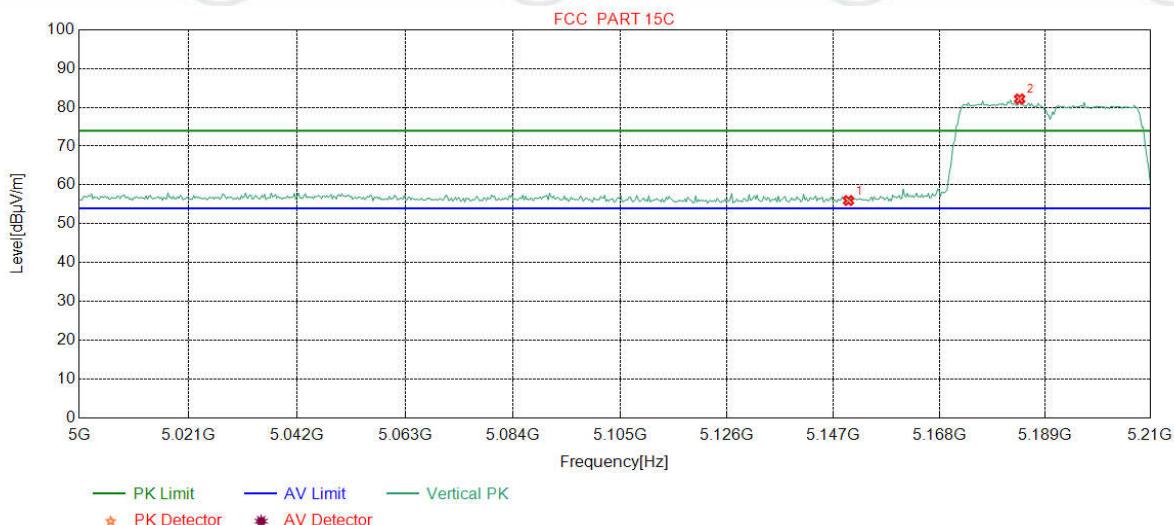
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.27	44.95	54.00	9.05	Pass	Vertical
2	5180.7259	34.68	15.38	-35.96	62.67	76.77	54.00	-22.77	Pass	Vertical

Mode:	802.11 n(HT40) Transmitting	Channel:	5190
Remark:	Peak		



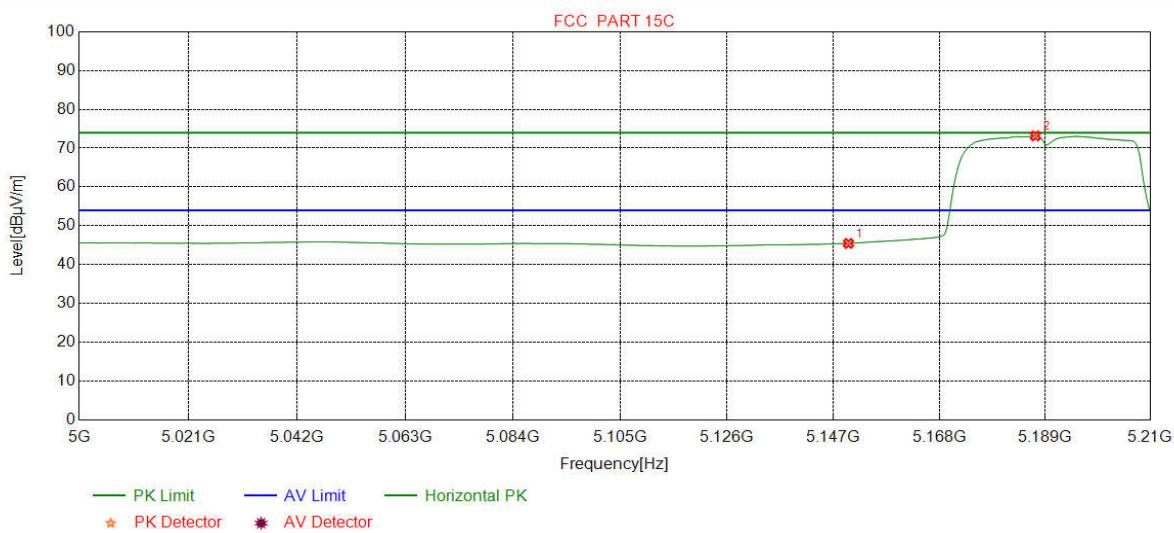
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	42.69	56.37	74.00	17.63	Pass	Horizontal
2	5201.0638	34.70	15.57	-35.90	68.75	83.12	74.00	-9.12	Pass	Horizontal

Mode:	802.11 n(HT40) Transmitting	Channel:	5190
Remark:	Peak		



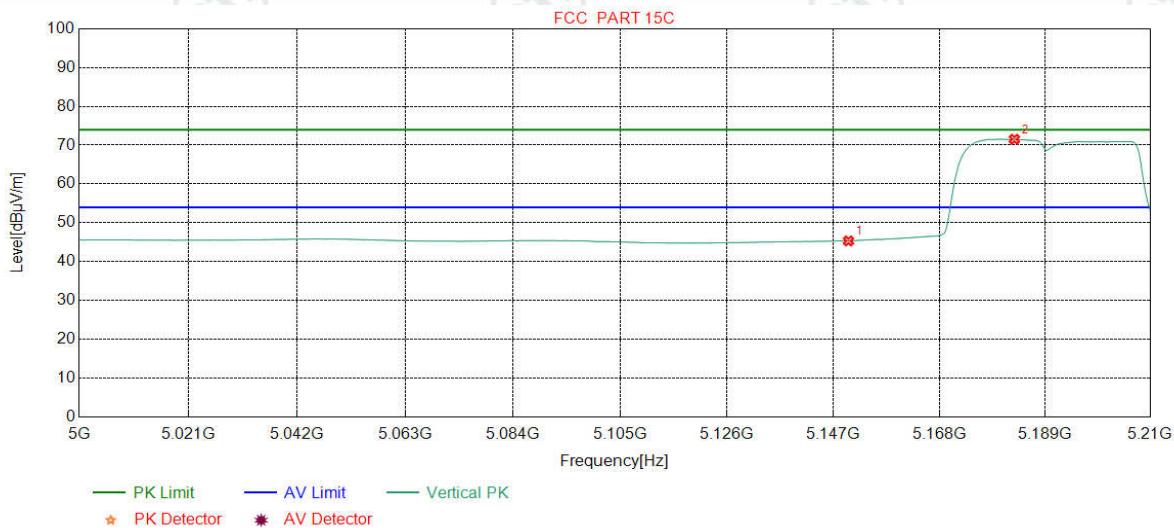
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	42.30	55.98	74.00	18.02	Pass	Vertical
2	5183.9800	34.68	15.41	-35.94	68.03	82.18	74.00	-8.18	Pass	Vertical

Mode:	802.11 n(HT40) Transmitting	Channel:	5190
Remark:	Average		



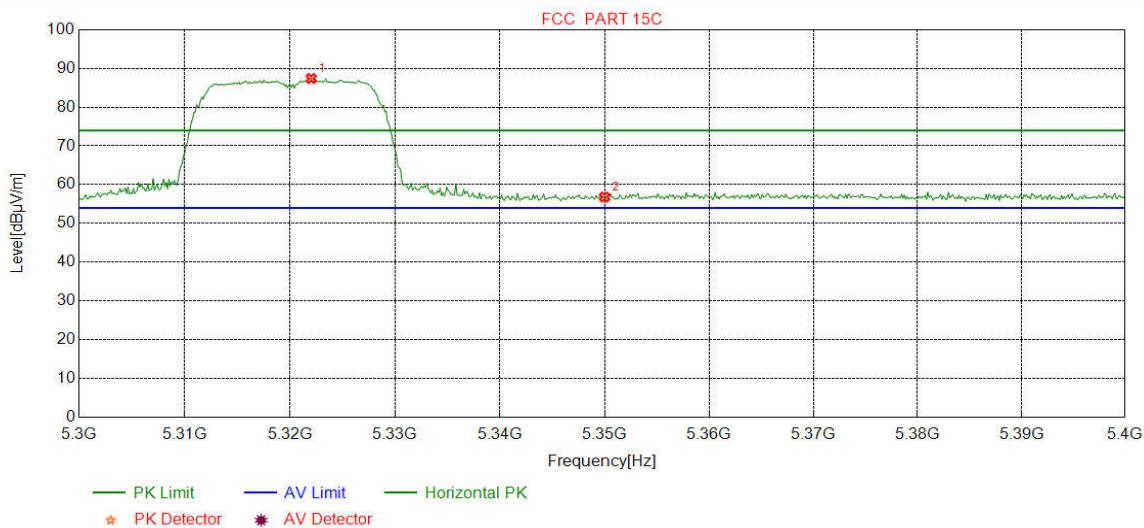
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.76	45.44	54.00	8.56	Pass	Horizontal
2	5187.1339	34.69	15.44	-35.94	58.98	73.17	54.00	-19.17	Pass	Horizontal

Mode:	802.11 n(HT40) Transmitting	Channel:	5190
Remark:	Average		



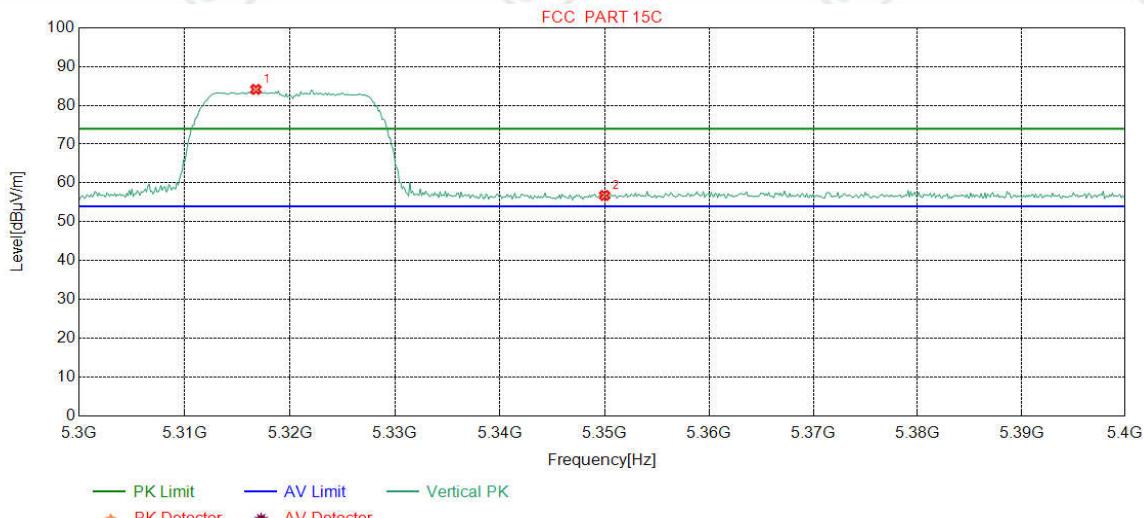
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5150.0000	34.65	15.08	-36.05	31.63	45.31	54.00	8.69	Pass	Vertical
2	5182.9287	34.68	15.40	-35.95	57.41	71.54	54.00	-17.54	Pass	Vertical

Mode:	802.11 a(HT20) Transmitting	Channel:	5320
Remark:	Peak		



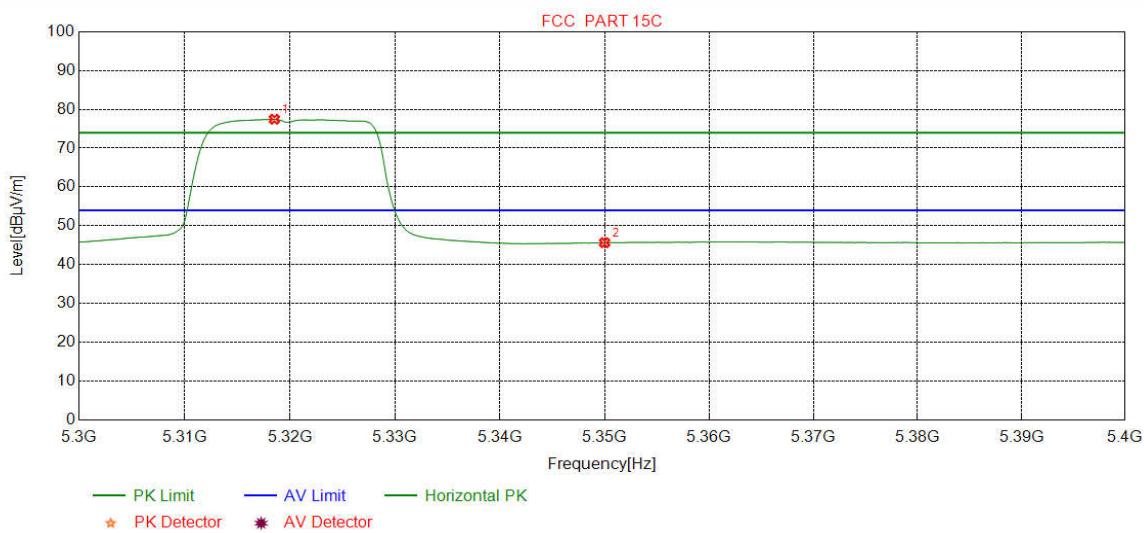
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5322.0275	34.82	15.67	-35.96	72.88	87.41	74.00	-13.41	Pass	Horizontal
2	5350.0000	34.85	15.92	-35.92	41.94	56.79	74.00	17.21	Pass	Horizontal

Mode:	802.11 a(HT20) Transmitting	Channel:	5320
Remark:	Peak		



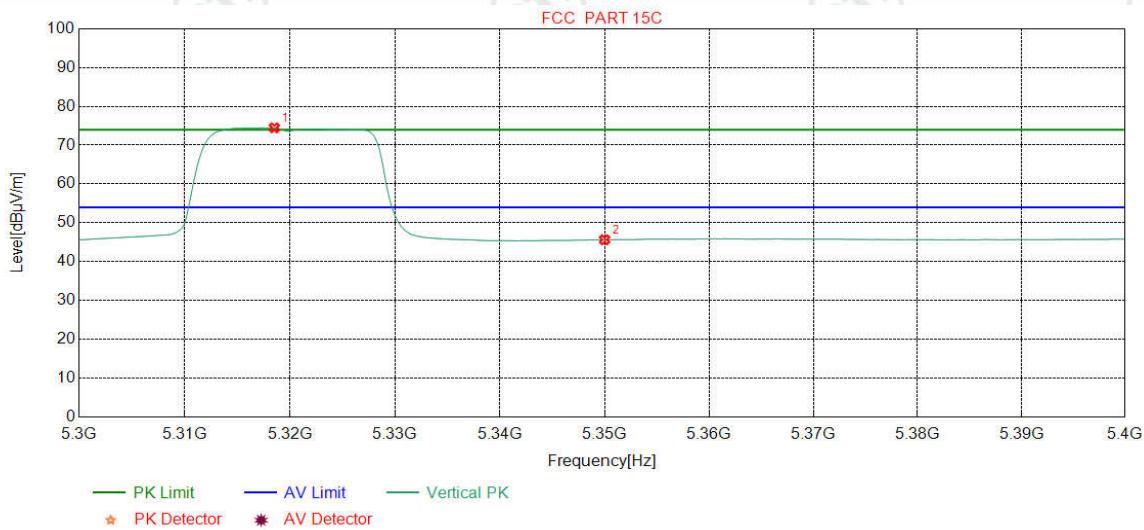
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5316.7710	34.82	15.62	-35.97	69.65	84.12	74.00	-10.12	Pass	Vertical
2	5350.0000	34.85	15.92	-35.92	41.93	56.78	74.00	17.22	Pass	Vertical

Mode:	802.11 a(HT20) Transmitting	Channel:	5320
Remark:	Average		



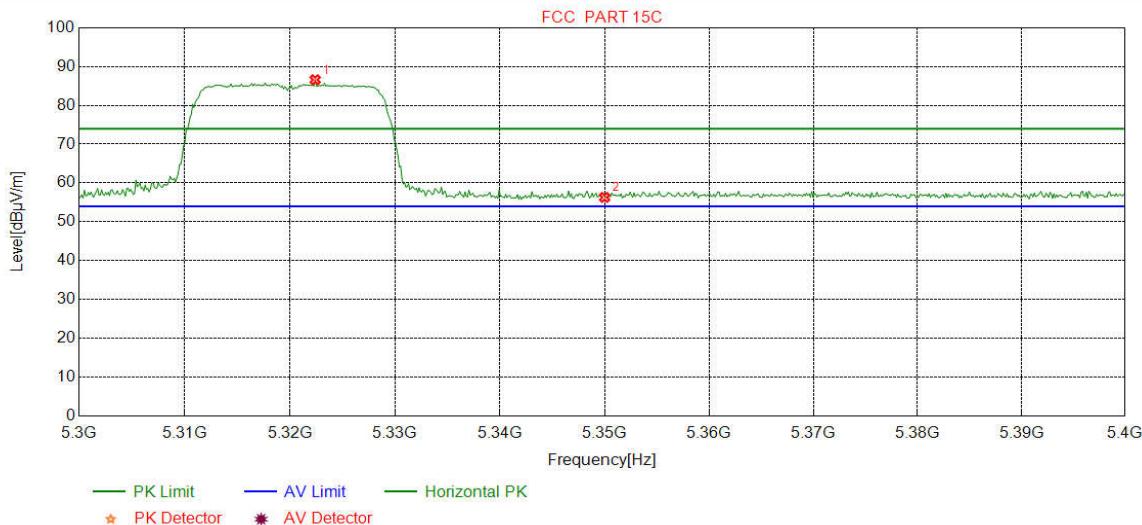
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5318.5232	34.82	15.64	-35.97	62.97	77.46	54.00	-23.46	Pass	Horizontal
2	5350.0000	34.85	15.92	-35.92	30.78	45.63	54.00	8.37	Pass	Horizontal

Mode:	802.11 a(HT20) Transmitting	Channel:	5320
Remark:	Average		



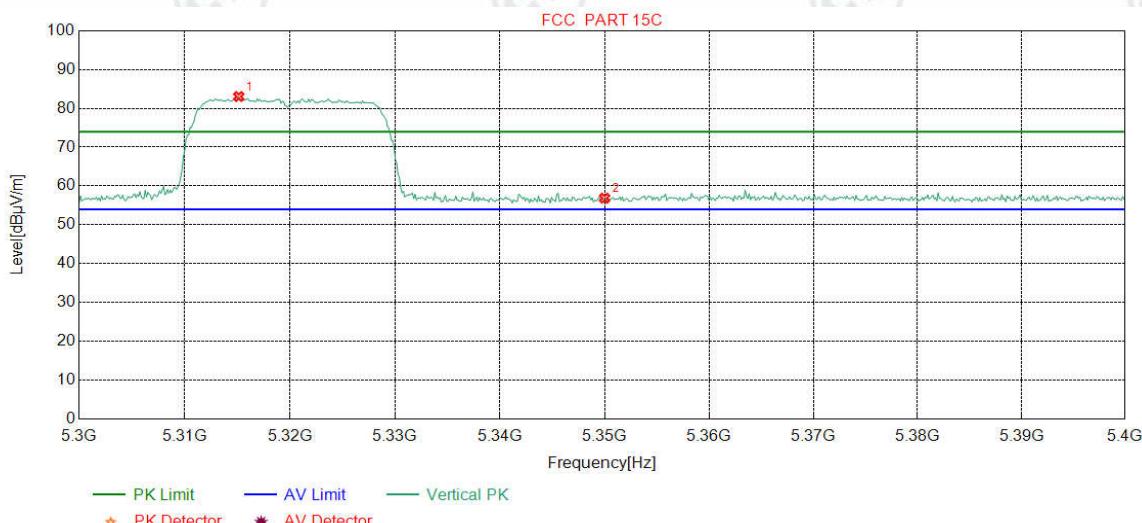
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5318.5232	34.82	15.64	-35.97	59.98	74.47	54.00	-20.47	Pass	Vertical
2	5350.0000	34.85	15.92	-35.92	30.77	45.62	54.00	8.38	Pass	Vertical

Mode:	802.11 n(HT20) Transmitting	Channel:	5320
Remark:	Peak		



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5322.4030	34.82	15.67	-35.95	72.07	86.61	74.00	-12.61	Pass	Horizontal
2	5350.0000	34.85	15.92	-35.92	41.43	56.28	74.00	17.72	Pass	Horizontal

Mode:	802.11 n(HT20) Transmitting	Channel:	5320
Remark:	Peak		



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity
1	5315.1439	34.82	15.61	-35.98	68.61	83.06	74.00	-9.06	Pass	Vertical
2	5350.0000	34.85	15.92	-35.92	42.00	56.85	74.00	17.15	Pass	Vertical