

4 OCCUPIED BANDWIDTH TEST

4.1 26DB BANDWIDTH TEST

According to §15.303(c), for purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Compliance with the emissions limits is based on the use of measurement instrumentation employing a peak detector function with an instrument resolutions bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

4.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 100kHz, VBW $\cong$ RBW, Sweep time = Auto.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



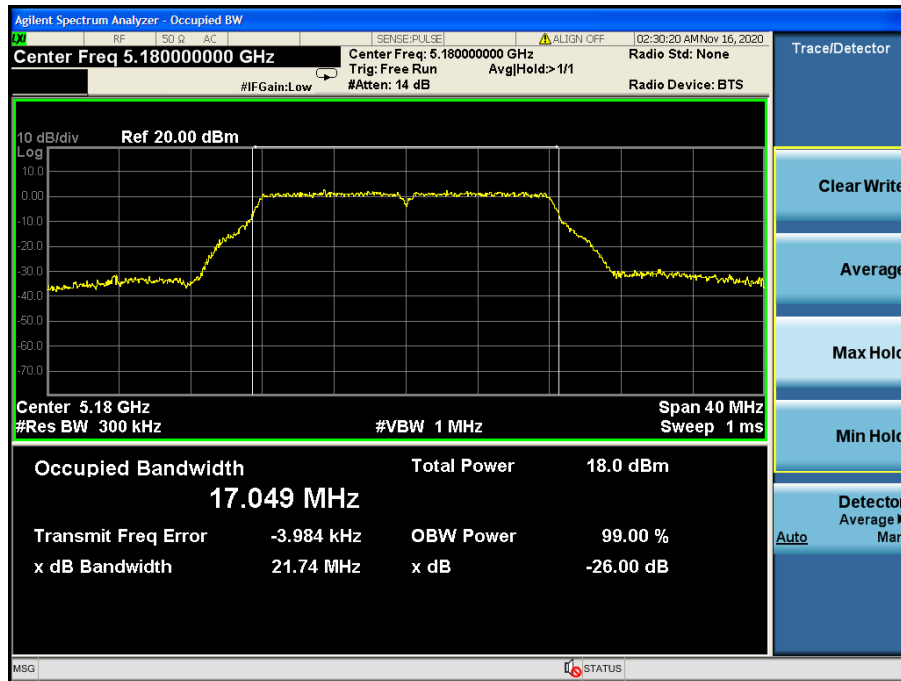
4.5 TEST RESULTS

ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

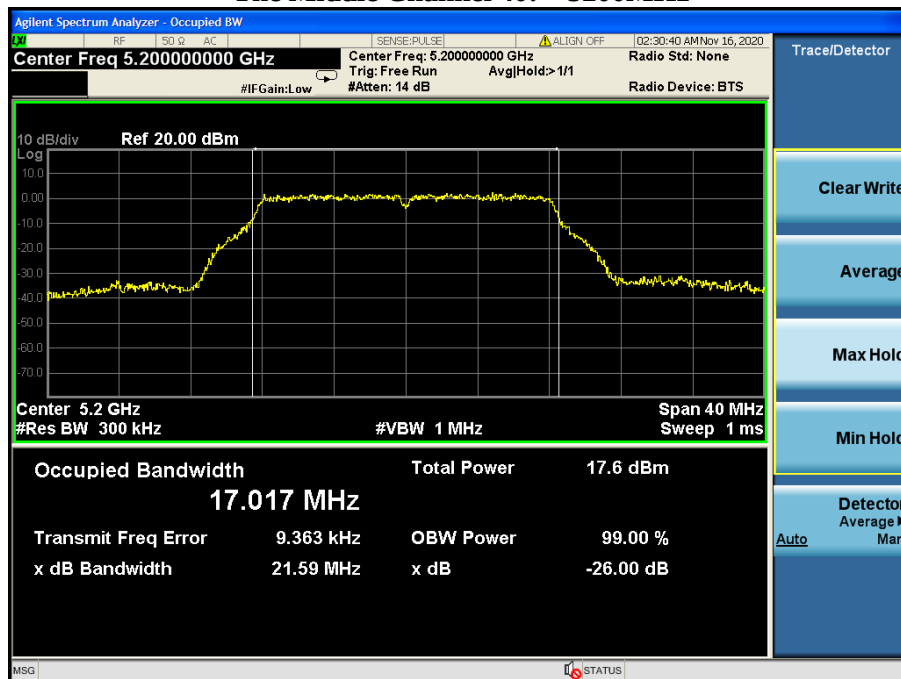
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	26 °C	Relative Humidity :	53%
Pressure :	1010 hPa	Test Power :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac 80 (worst case)		
Test Date :	2020-11-16		

Test Mode	Test Channel	Frequency (MHz)	26 dB Bandwidth (MHz) ANT 1	26 dB Bandwidth (MHz) ANT 2
802.11a (5.15GHz-5.25GHz) Data rate 6Mbps	CH36	5180	21.74	21.37
	CH40	5200	21.59	21.26
	CH48	5240	21.67	20.41
802.11n(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	CH36	5180	21.77	21.26
	CH40	5200	21.57	21.37
	CH48	5240	21.69	21.31
802.11ac(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	CH36	5180	21.81	21.56
	CH40	5200	21.66	21.35
	CH48	5240	21.77	21.30
802.11n(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	CH38	5190	39.66	39.25
	CH46	5230	39.60	39.31
802.11ac(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	CH38	5190	39.56	39.17
	CH46	5230	39.74	39.20
802.11ac(80M) (5.15GHz-5.25GHz) Data rate 58.6Mbps	CH42	5210	80.21	79.63

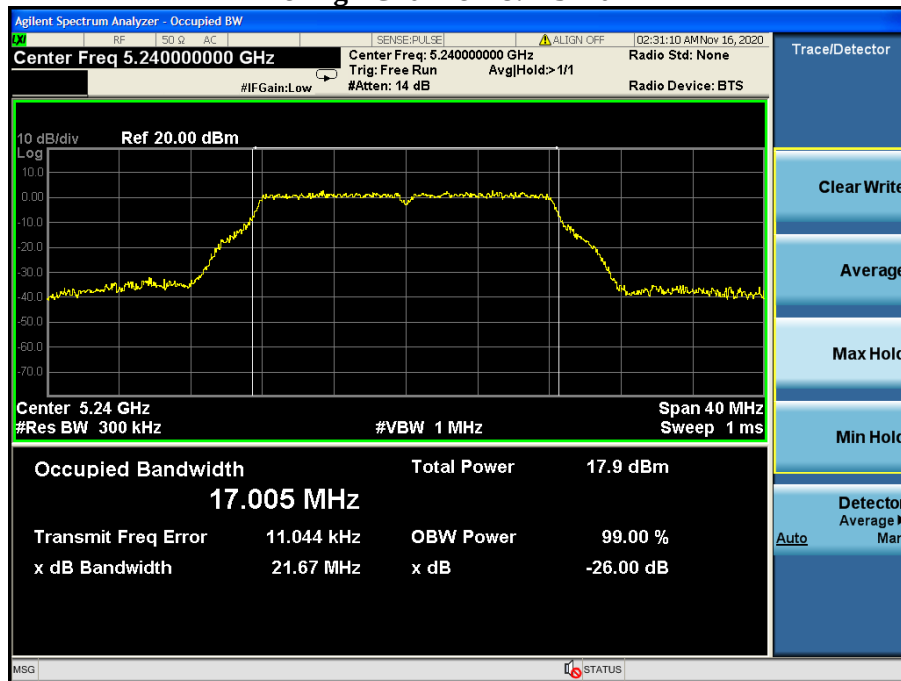
802.11a (5.15GHz-5.25GHz)
The Low Channel 36: 5180MHz



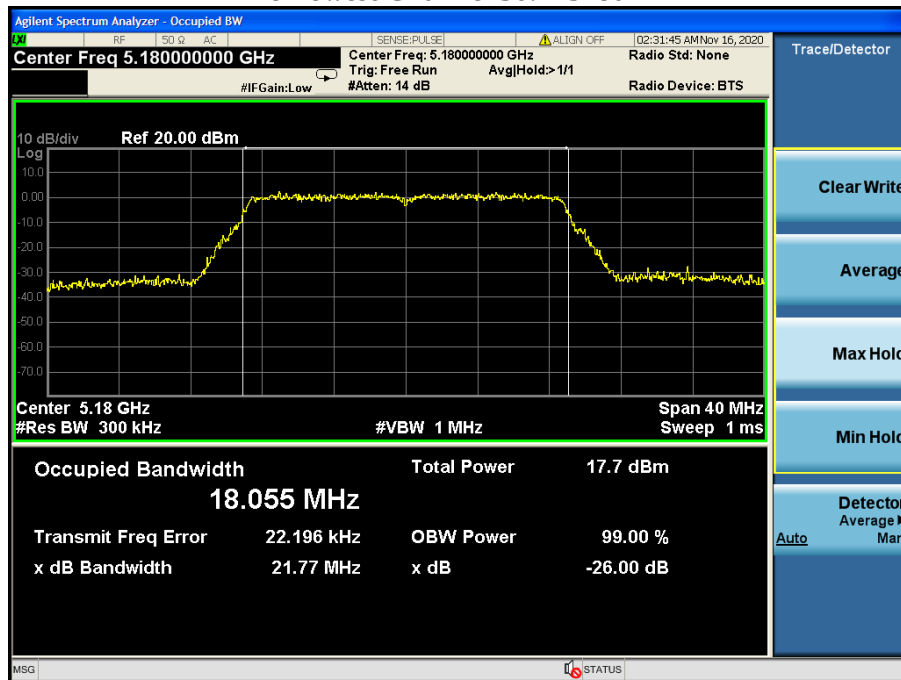
802.11a (5.15GHz-5.25GHz)
The Middle Channel 40: 5200MHz



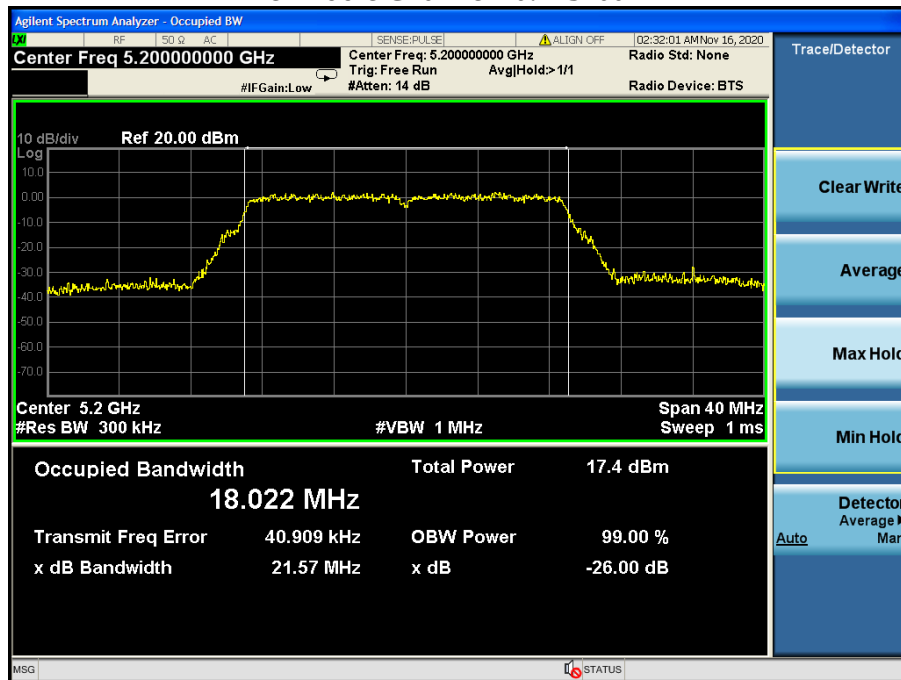
802.11a (5.15GHz-5.25GHz)
The High Channel 48: 5240MHz



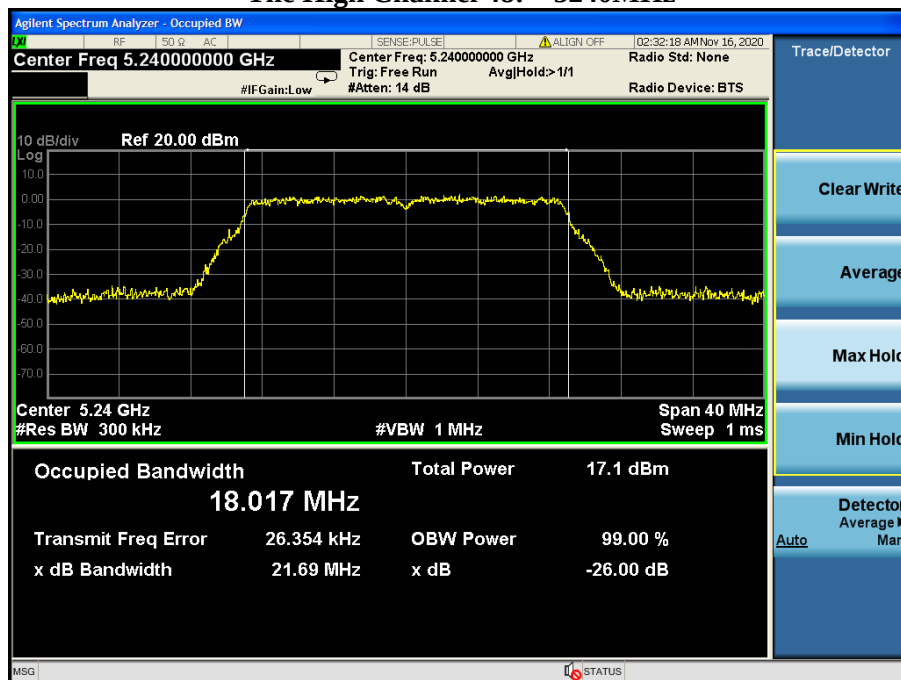
802.11n(20M) (5.15GHz-5.25GHz)
The Lowest Channel 36: 5180MHz



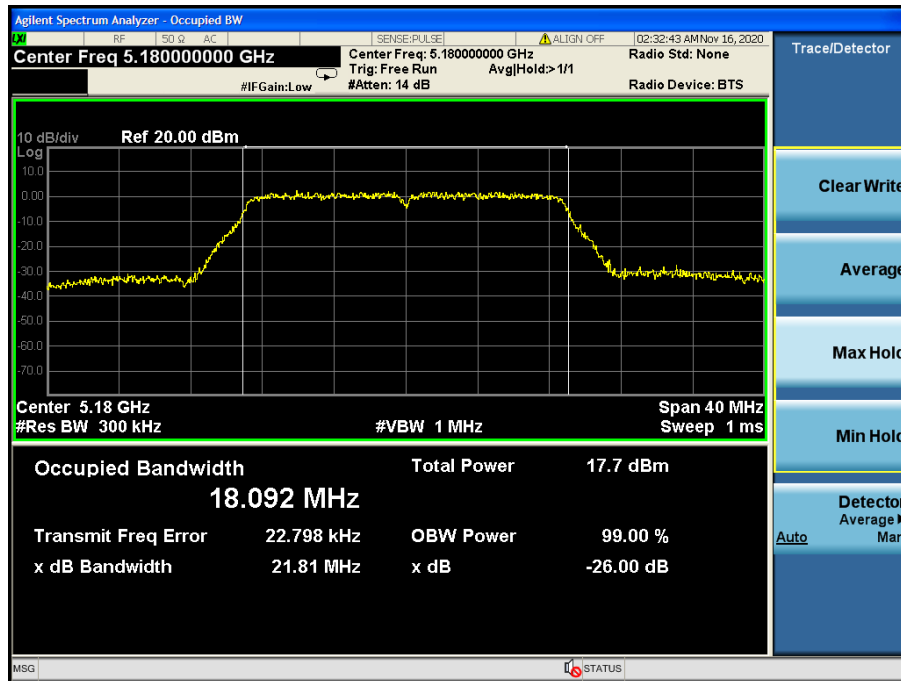
802.11n(20M) (5.15GHz-5.25GHz)
The Middle Channel 40: 5200MHz



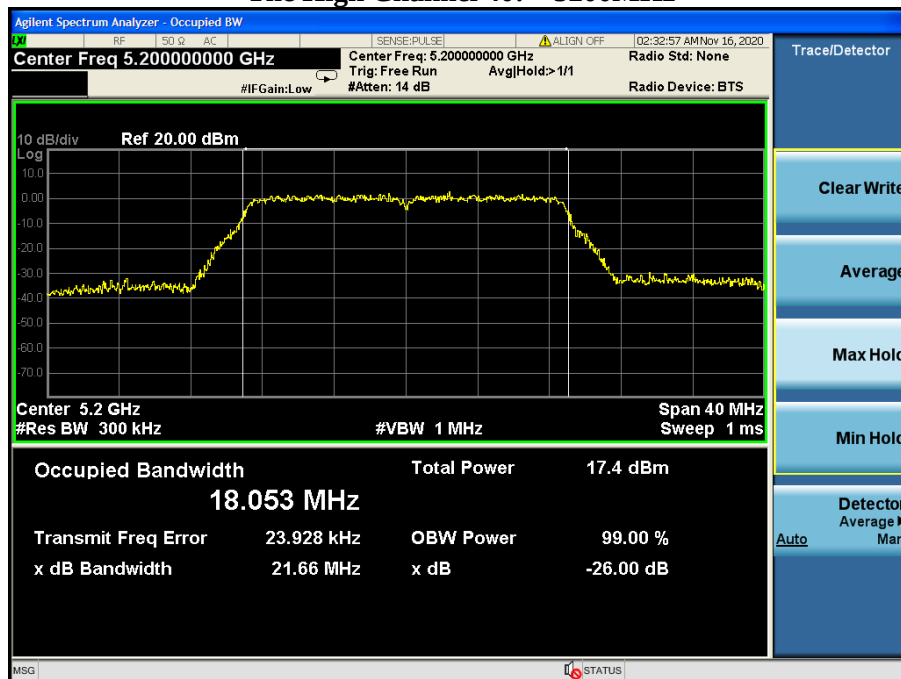
802.11n(20M) (5.15GHz-5.25GHz)
The High Channel 48: 5240MHz



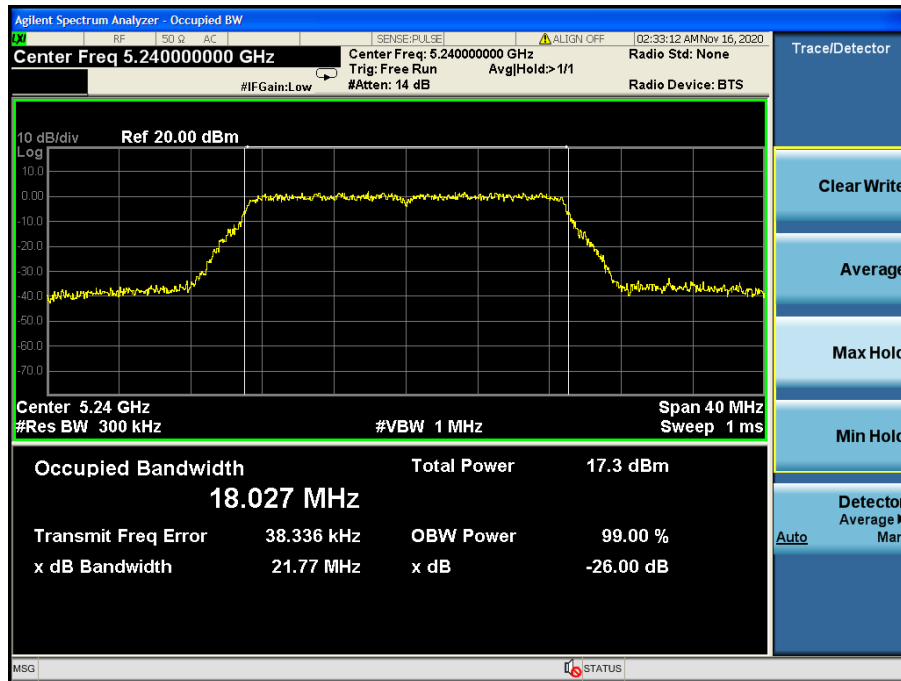
802.11ac(20M) (5.15GHz-5.25GHz)
The Middle Channel 36: 5180MHz



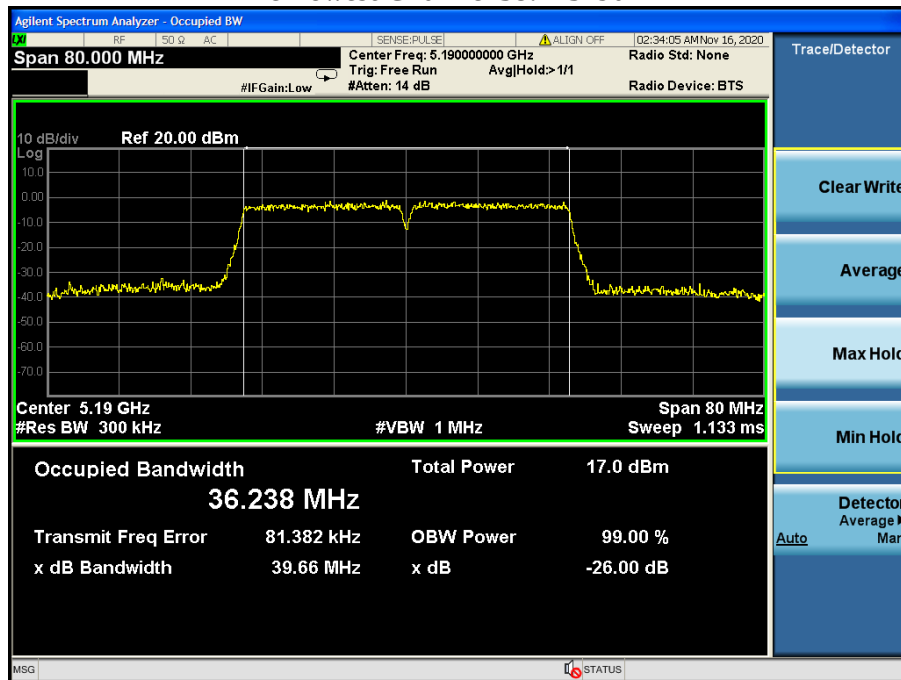
802.11n(20M) (5.15GHz-5.25GHz)
The High Channel 40: 5200MHz



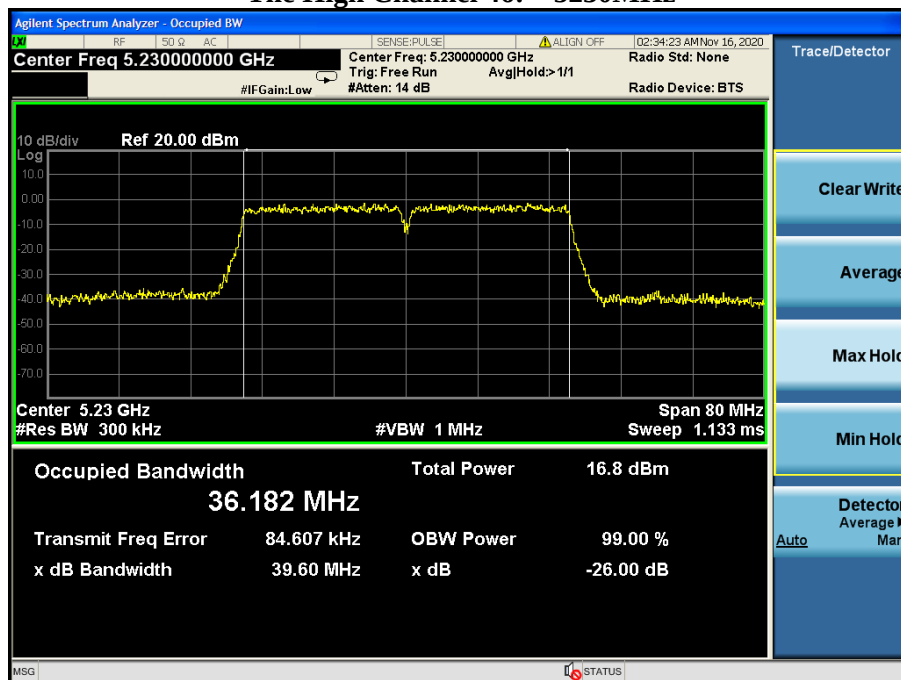
802.11ac(20M) (5.15GHz-5.25GHz)
The Middle Channel 48: 5240MHz



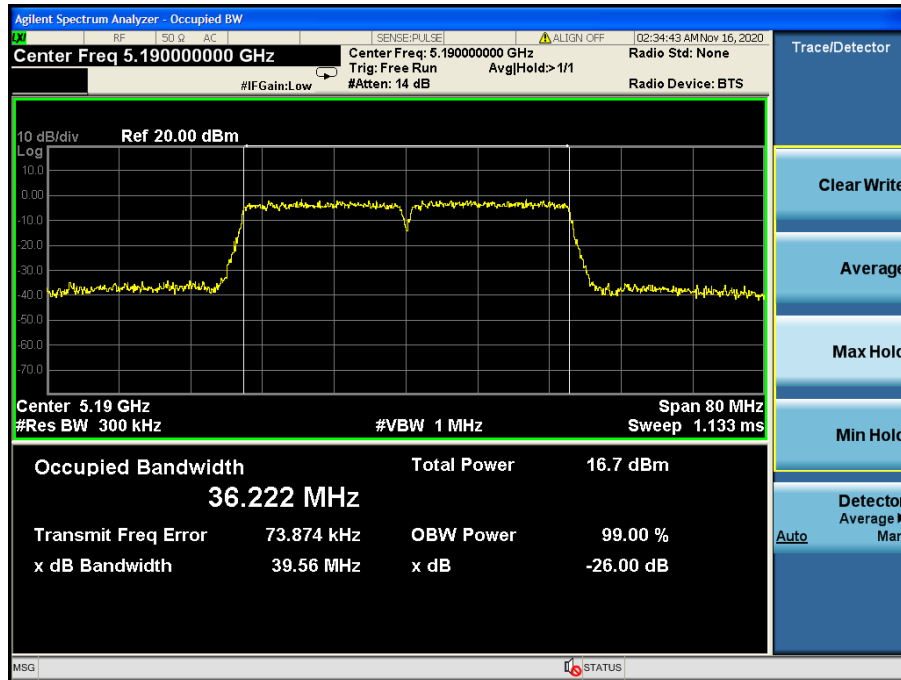
802.11n(40M) (5.15GHz-5.25GHz)
The Lowest Channel 38: 5190MHz



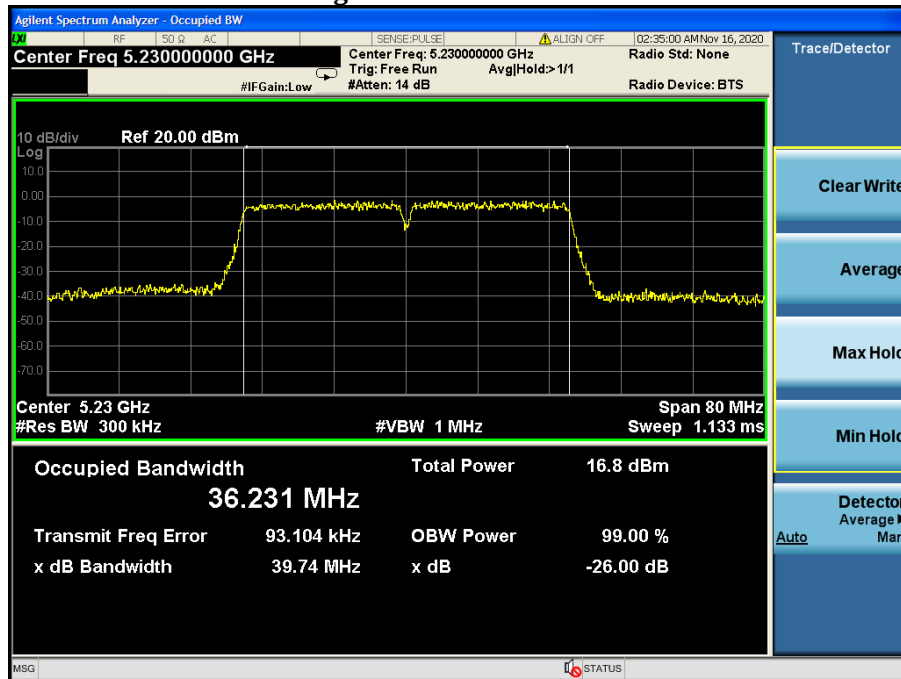
802.11n(40M) (5.15GHz-5.25GHz)
The High Channel 46: 5230MHz



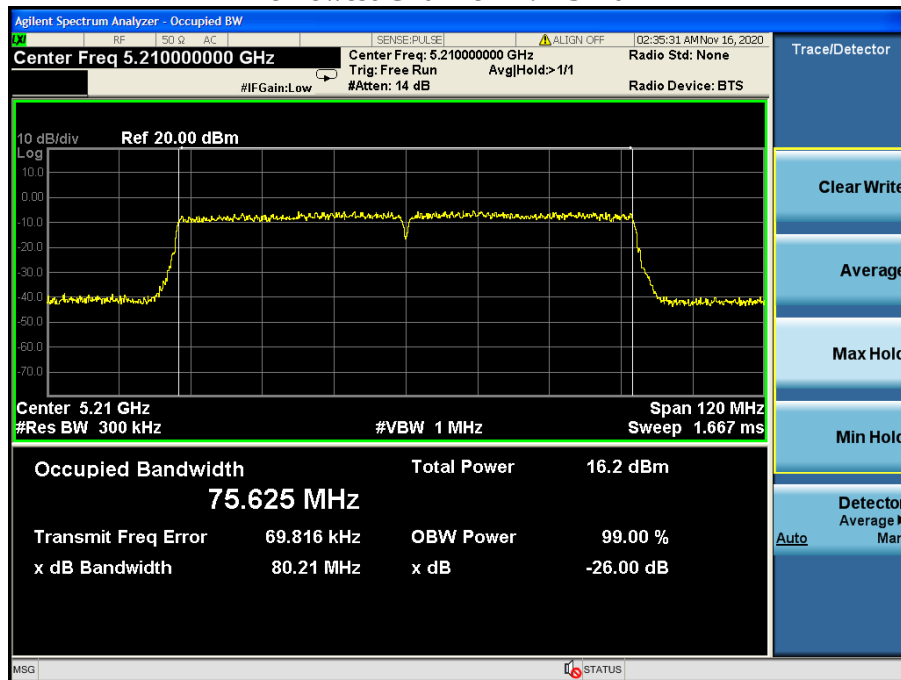
802.11ac(40M) (5.15GHz-5.25GHz)
The Lowest Channel 38: 5190MHz



802.11ac(40M) (5.15GHz-5.25GHz)
The High Channel 46: 5230MHz



802.11ac(80M) (5.15GHz-5.25GHz)
The Lowest Channel 42: 5210MHz

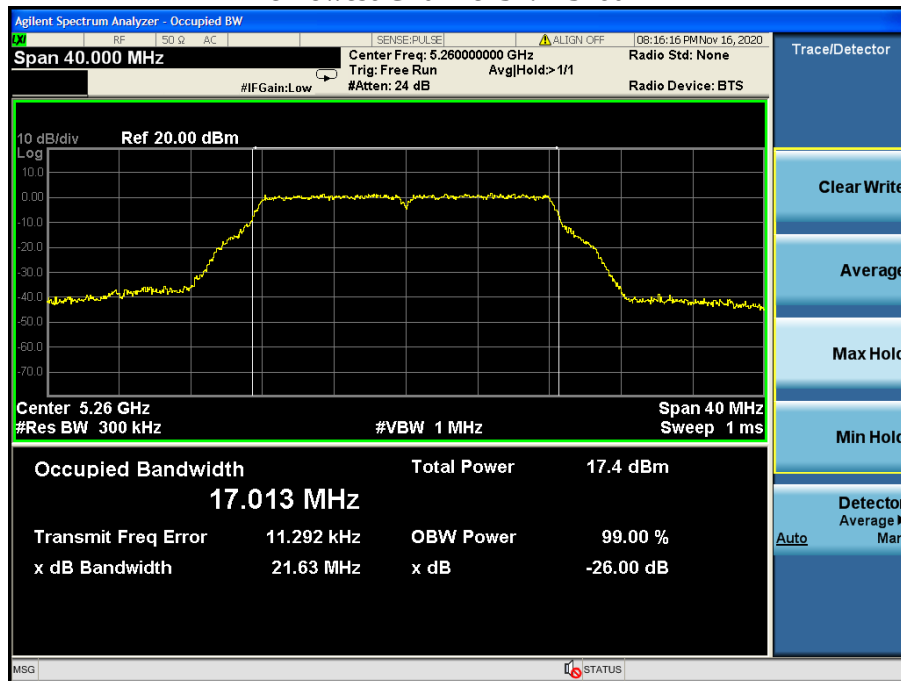


ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

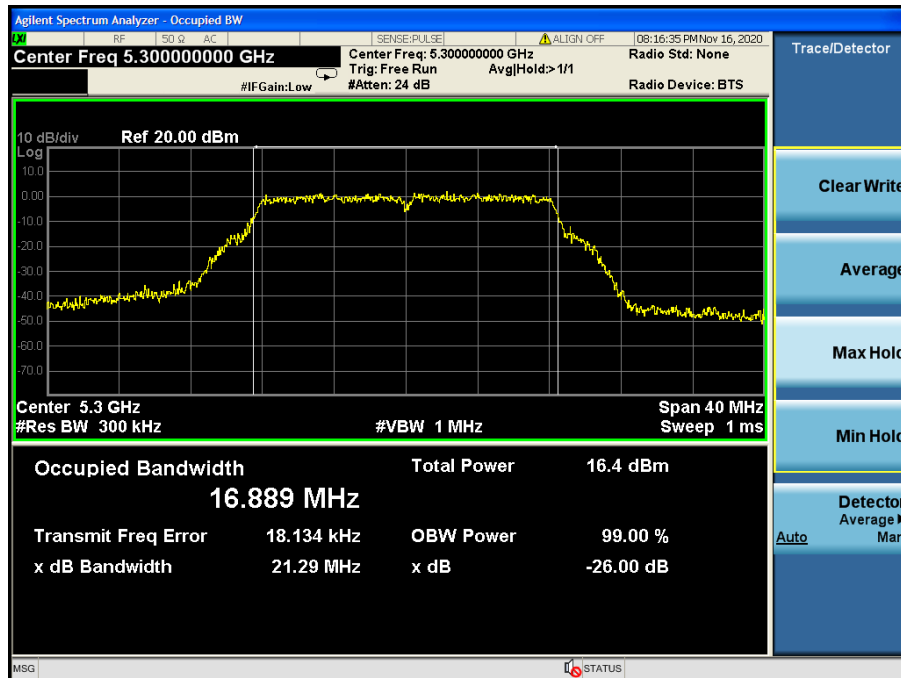
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	26 °C	Relative Humidity :	53%
Pressure :	1010 hPa	Test Power :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac80 (worst case)		
Test Date :	2020-11-16		

Test Mode	Test Channel	Frequency (MHz)	26 dB Bandwidth (MHz) ANT 1	26 dB Bandwidth (MHz) ANT 2
802.11a (5.25GHz-5.35GHz) Data rate 6Mbps	CH52	5260	21.63	21.05
	CH60	5300	21.29	21.03
	CH64	5320	21.60	21.11
802.11n(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	CH52	5260	21.67	21.17
	CH60	5300	21.71	21.36
	CH64	5320	21.90	21.23
802.11ac(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	CH52	5260	21.86	21.15
	CH60	5300	21.74	21.41
	CH64	5320	21.76	21.23
802.11n(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	CH54	5270	40.35	40.01
	CH62	5310	39.95	39.51
802.11ac(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	CH54	5270	39.73	39.41
	CH62	5310	39.55	39.06
802.11ac(80M) (5.25GHz-5.35GHz) Data rate 58.6Mbps	CH58	5290	81.54	81.14

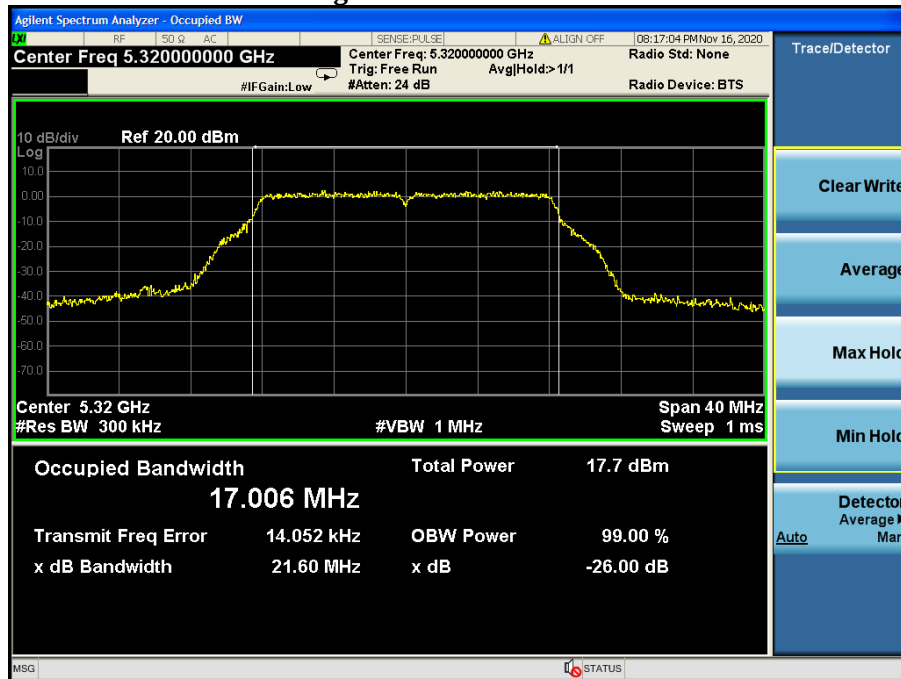
802.11a (5.25GHz-5.35GHz)
The Lowest Channel 52: 5260MHz



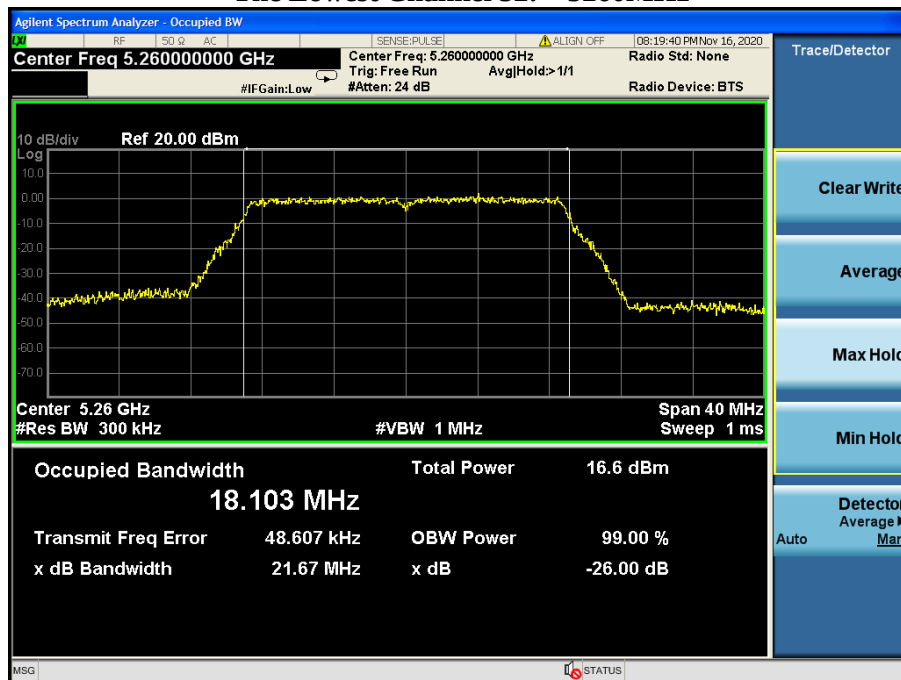
802.11a (5.25GHz-5.35GHz)
The Middle Channel 60: 5300MHz



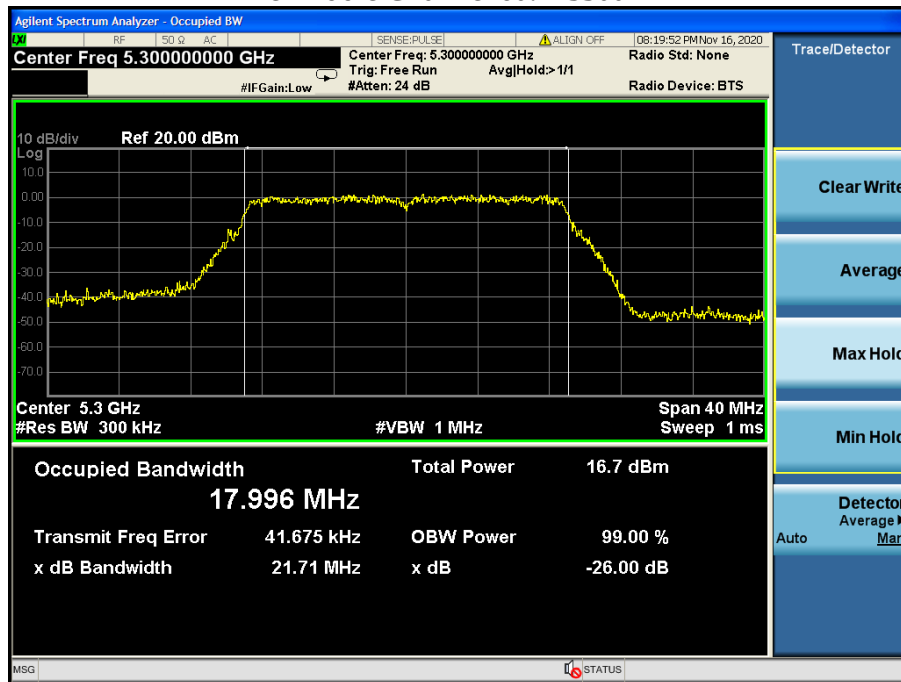
802.11a (5.25GHz-5.35GHz)
The High Channel 64: 5320MHz



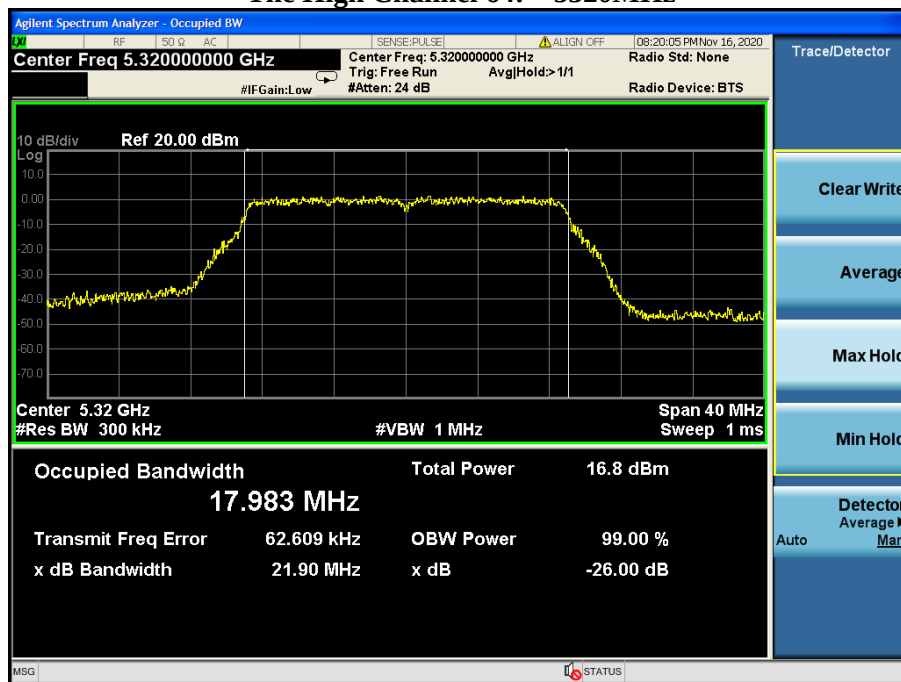
802.11n(20M) (5.25GHz-5.35GHz)
The Lowest Channel 52: 5260MHz



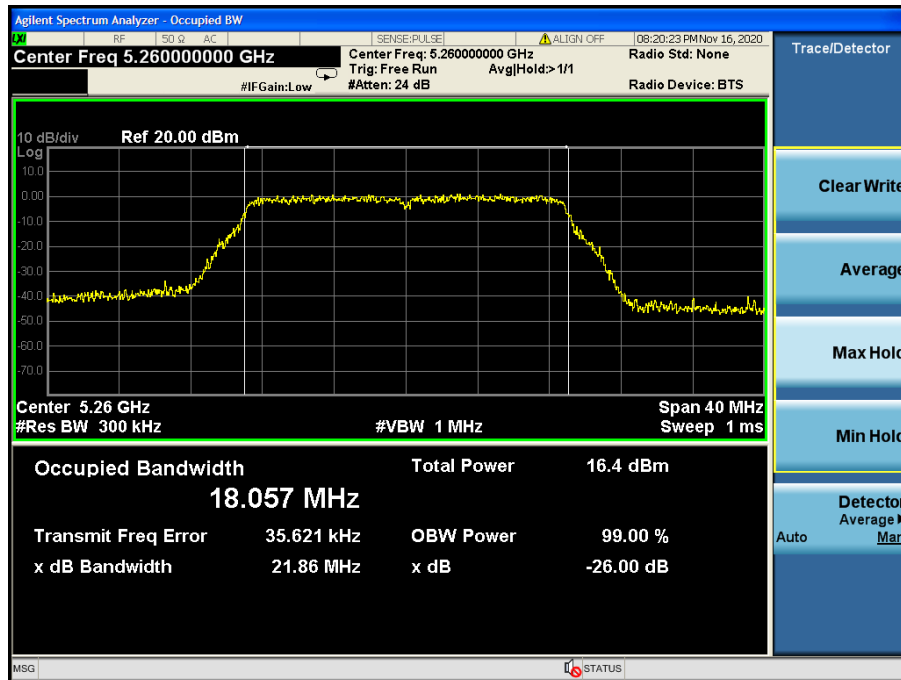
802.11n(20M) (5.25GHz-5.35GHz)
The Middle Channel 60: 5300MHz



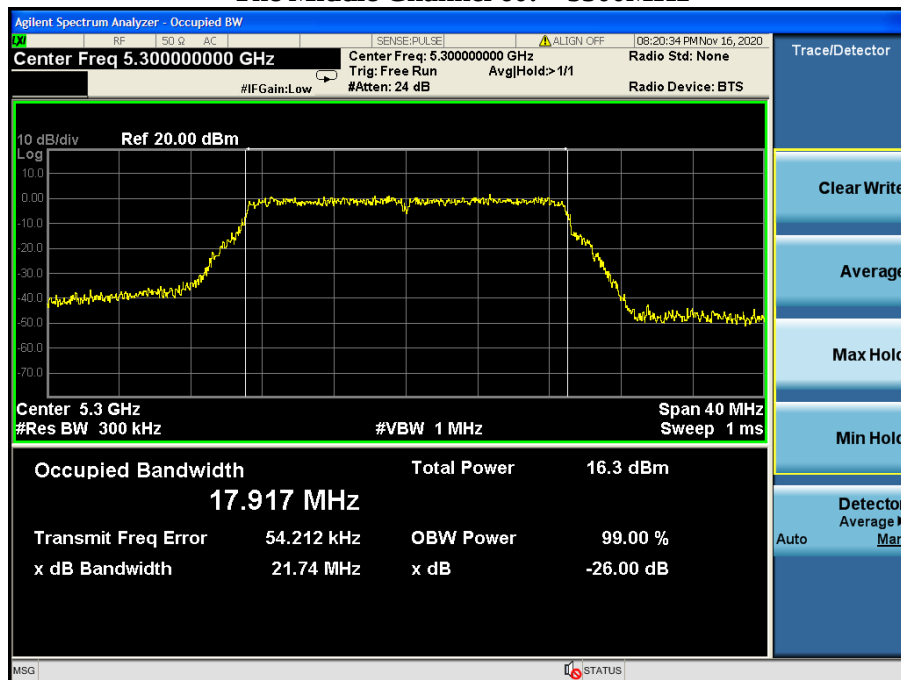
802.11n(20M) (5.25GHz-5.35GHz)
The High Channel 64: 5320MHz



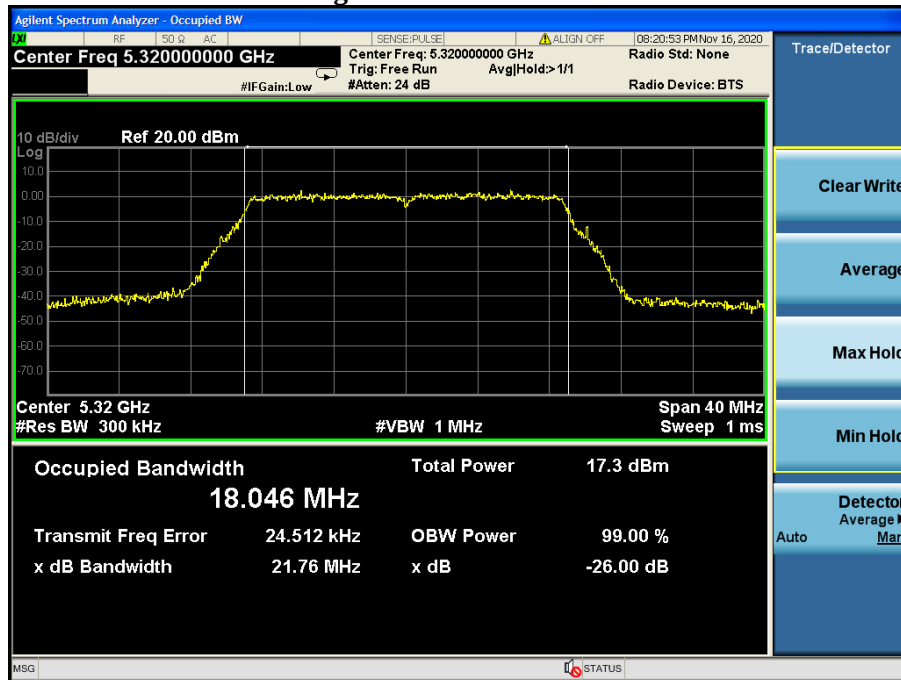
802.11ac (5.25GHz-5.35GHz) The Lowest Channel 52: 5260MHz



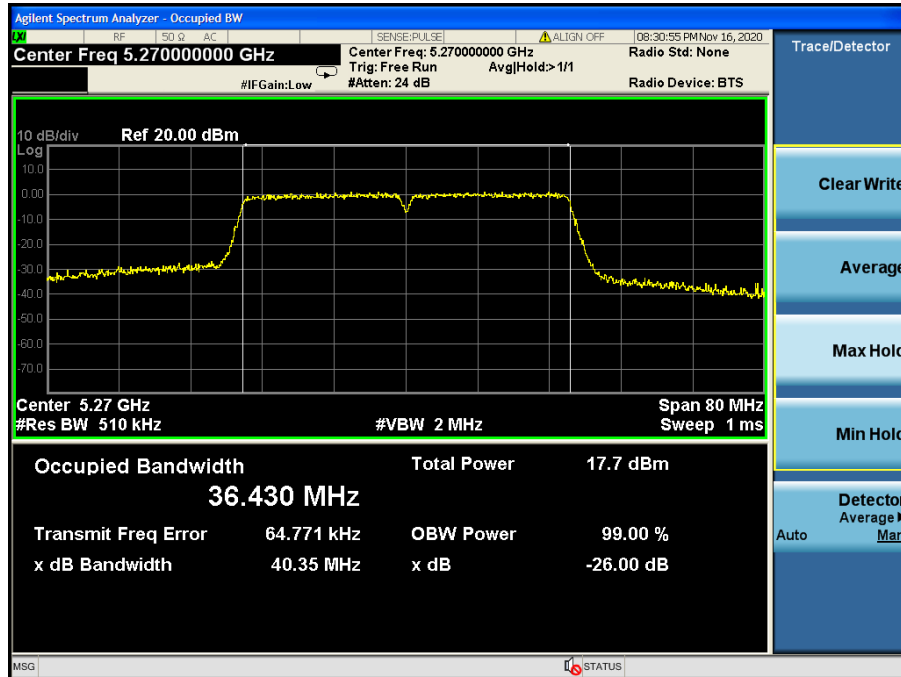
802.11ac (5.25GHz-5.35GHz) The Middle Channel 60: 5300MHz



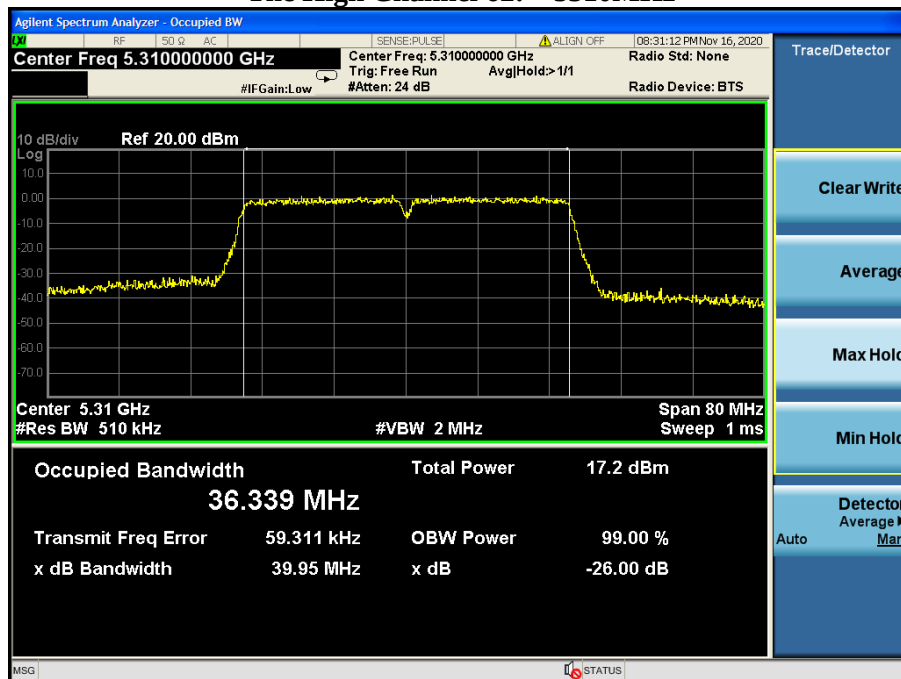
802.11ac (5.25GHz-5.35GHz)
The High Channel 64: 5320MHz



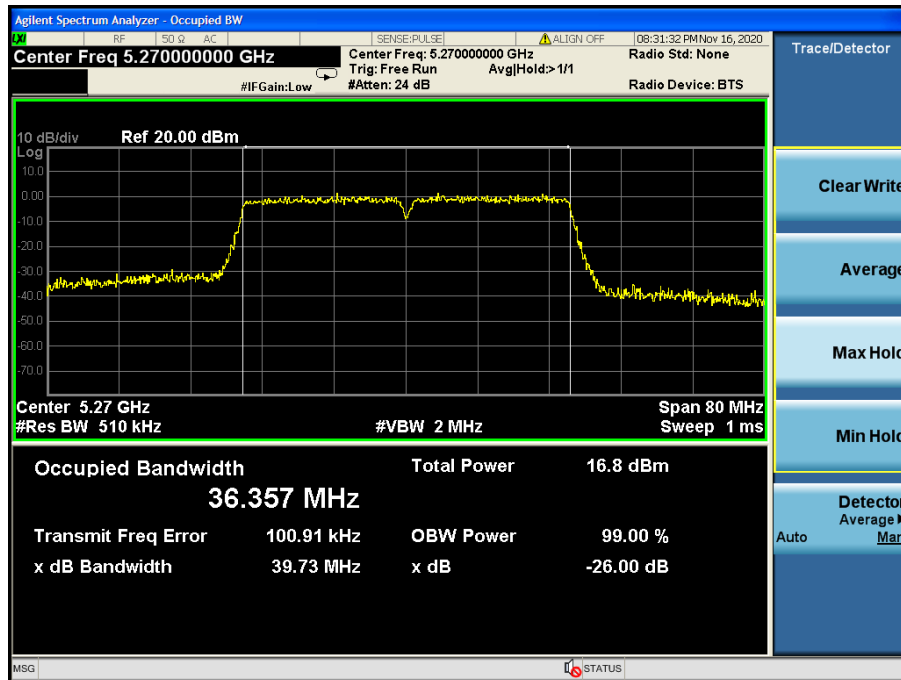
802.11n(40M) (5.25GHz-5.35GHz) The Lowest Channel 54: 5270MHz



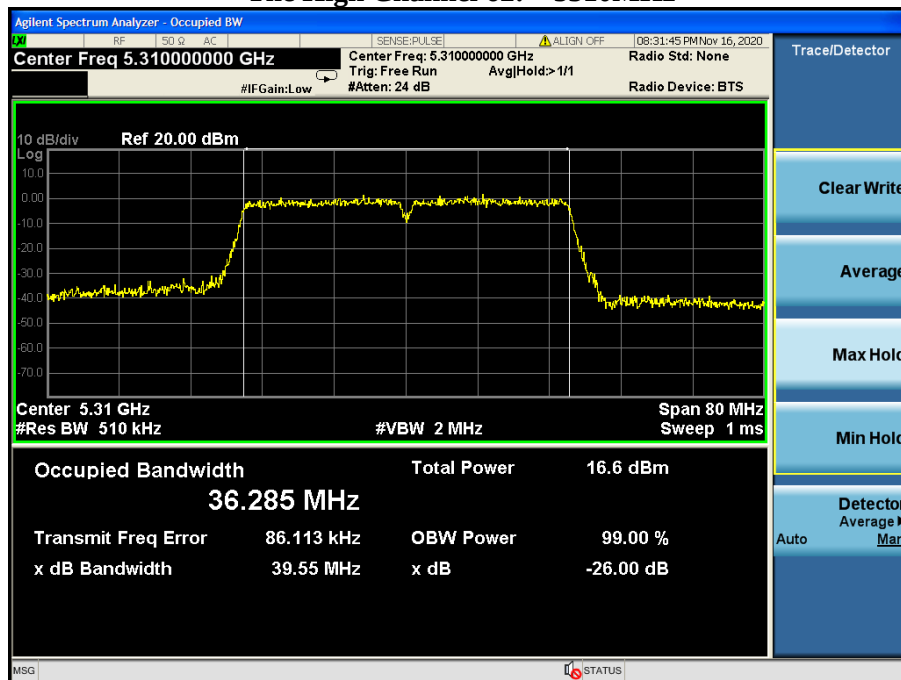
802.11n(40M) (5.25GHz-5.35GHz) The High Channel 62: 5310MHz



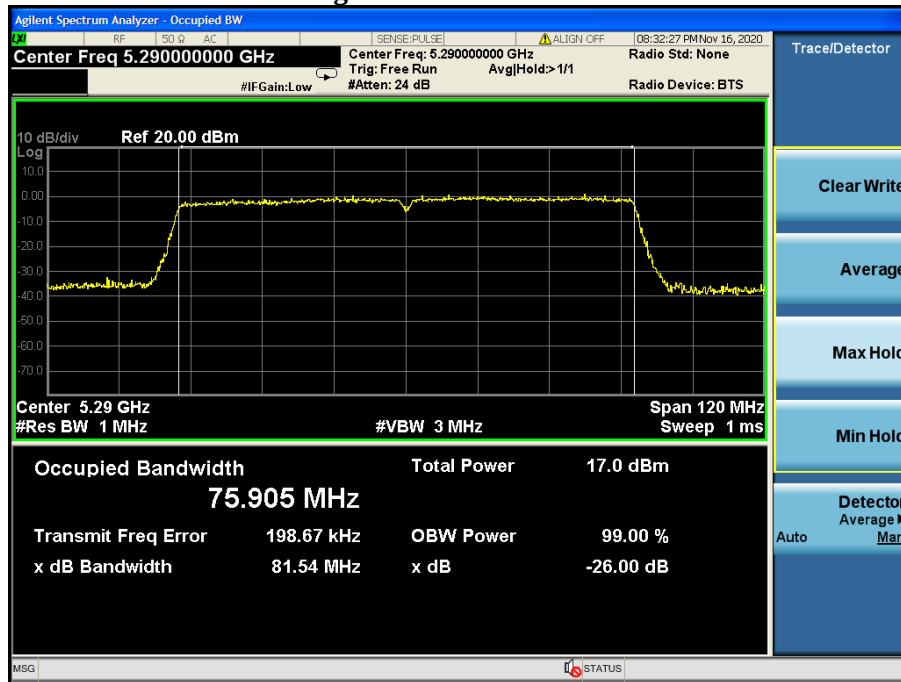
802.11ac(40M) (5.25GHz-5.35GHz)
The Lowest Channel 54: 5270MHz



802.11ac(40M) (5.25GHz-5.35GHz)
The High Channel 62: 5310MHz



802.11ac(80M) (5.25GHz-5.35GHz)
The High Channel 58: 5290MHz

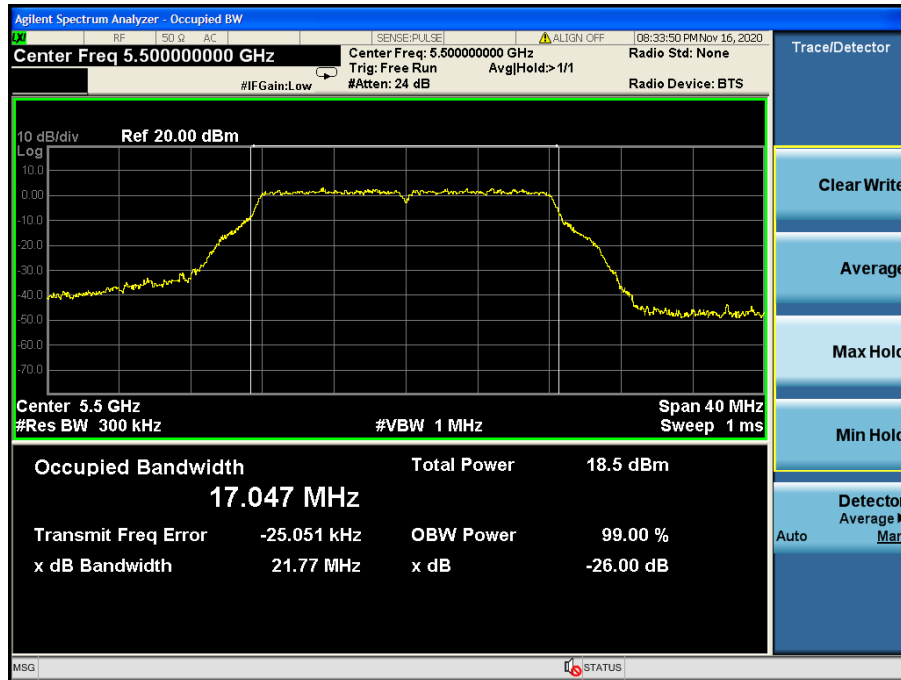


ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

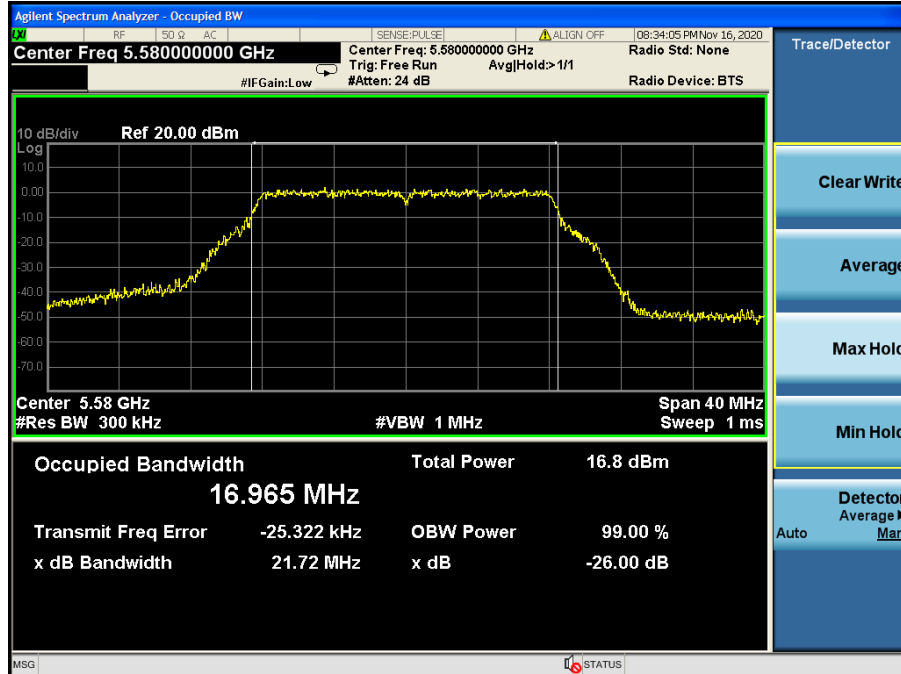
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	26 °C	Relative Humidity :	53%
Pressure :	1010 hPa	Test Power :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac80 (worst case)		
Test Date :	2020-11-16		

Test Mode	Test Channel	Frequency (MHz)	26 dB Bandwidth (MHz) ANT 1	26 dB Bandwidth (MHz) ANT 2
802.11a (5.47GHz-5.725GHz) Data rate 6Mbps	CH100	5500	21.77	21.41
	CH116	5580	21.72	21.37
	CH140	5700	21.41	21.16
802.11n(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	CH100	5500	22.02	21.85
	CH116	5580	21.99	21.70
	CH140	5700	21.96	21.74
802.11ac(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	CH100	5500	21.81	21.51
	CH116	5580	21.88	21.47
	CH140	5700	21.72	21.42
802.11n(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	CH102	5510	40.31	40.11
	CH110	5550	40.08	39.82
	CH134	5670	39.98	39.76
802.11ac(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	CH102	5510	39.96	39.25
	CH110	5550	40.01	39.52
	CH134	5670	40.00	39.47
802.11ac(80M) (5.47GHz-5.725GHz) Data rate 58.6Mbps	CH106	5530	82.10	81.66

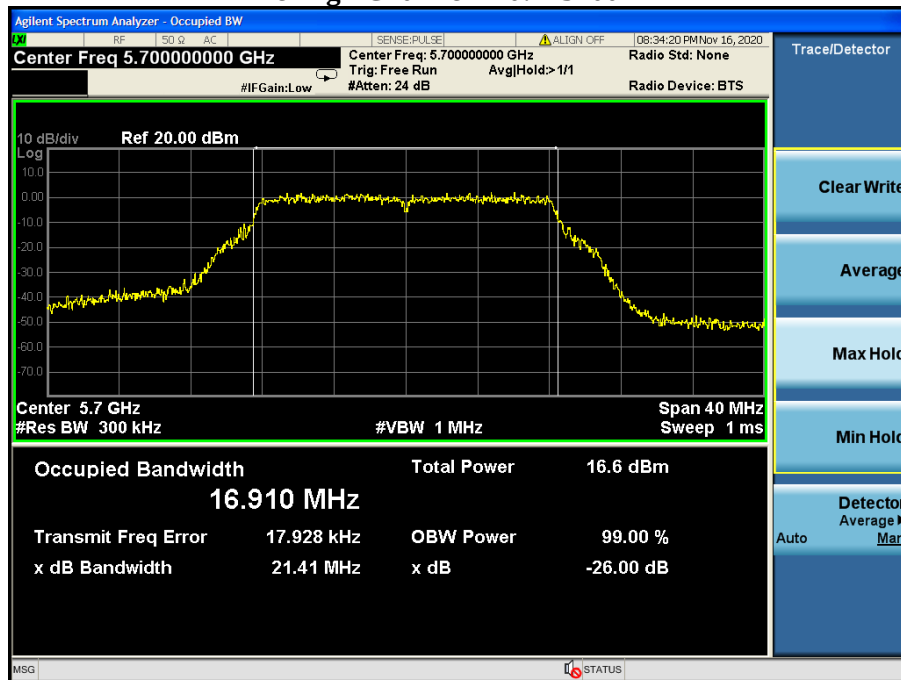
802.11a (5.47GHz-5.725GHz) The Lowest Channel 100: 5500MHz



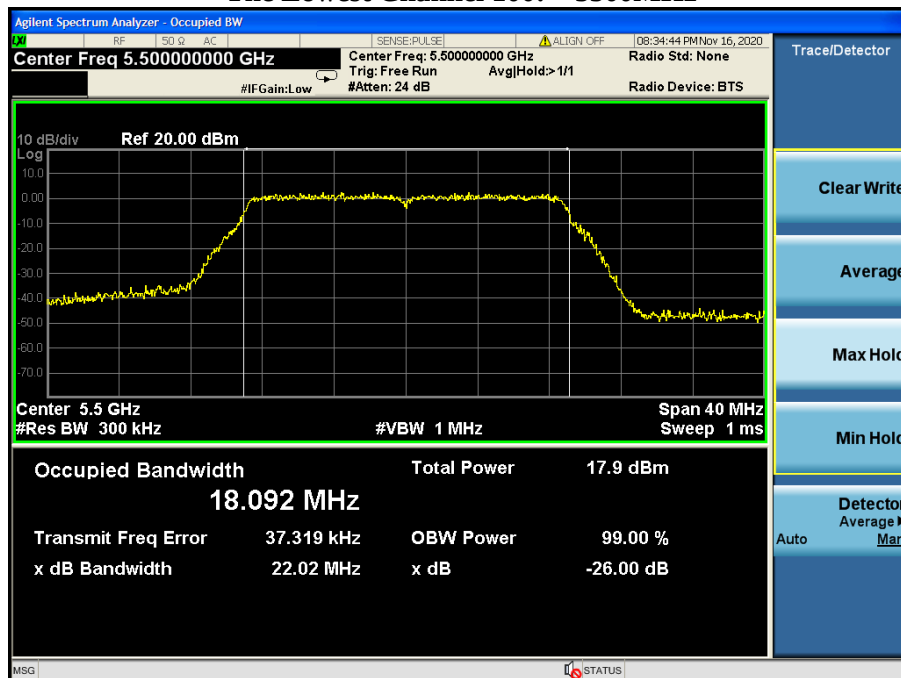
802.11a (5.47GHz-5.725GHz) The Middle Channel 116: 5580MHz



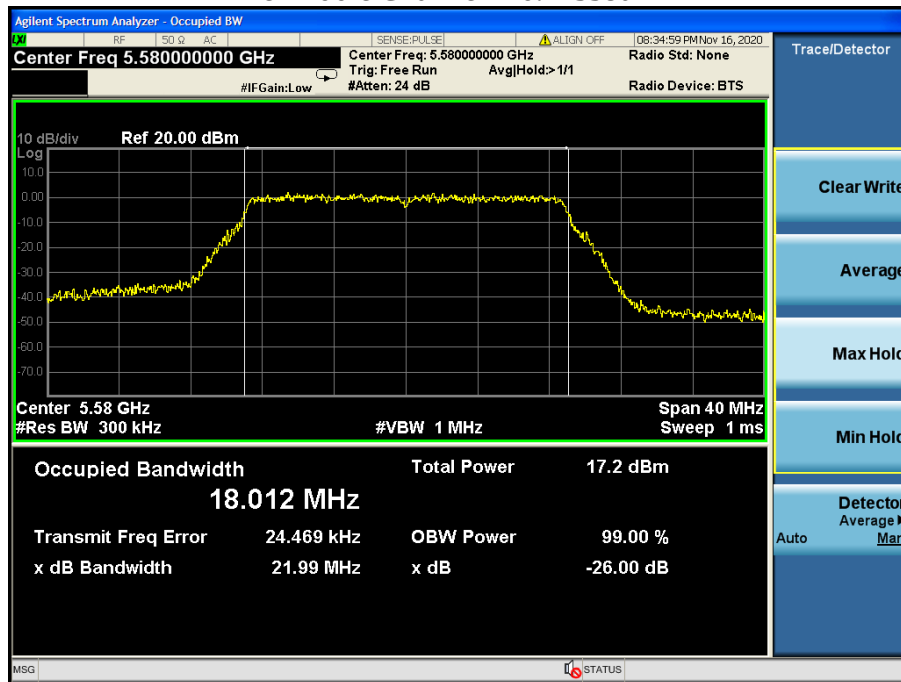
802.11a (5.47GHz-5.725GHz)
The High Channel 140: 5700MHz



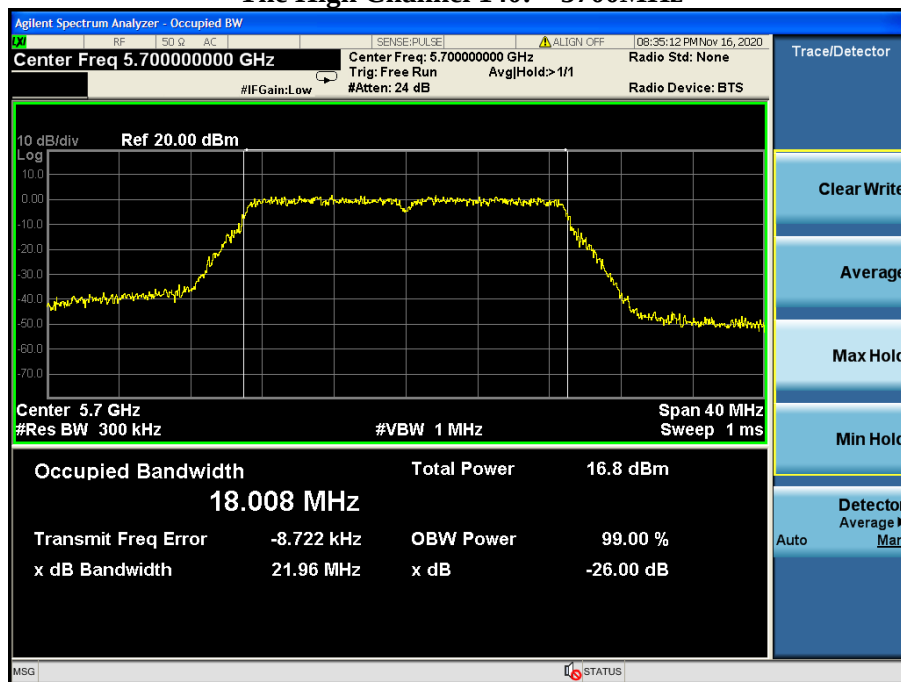
802.11n(20M) (5.47GHz-5.725GHz)
The Lowest Channel 100: 5500MHz



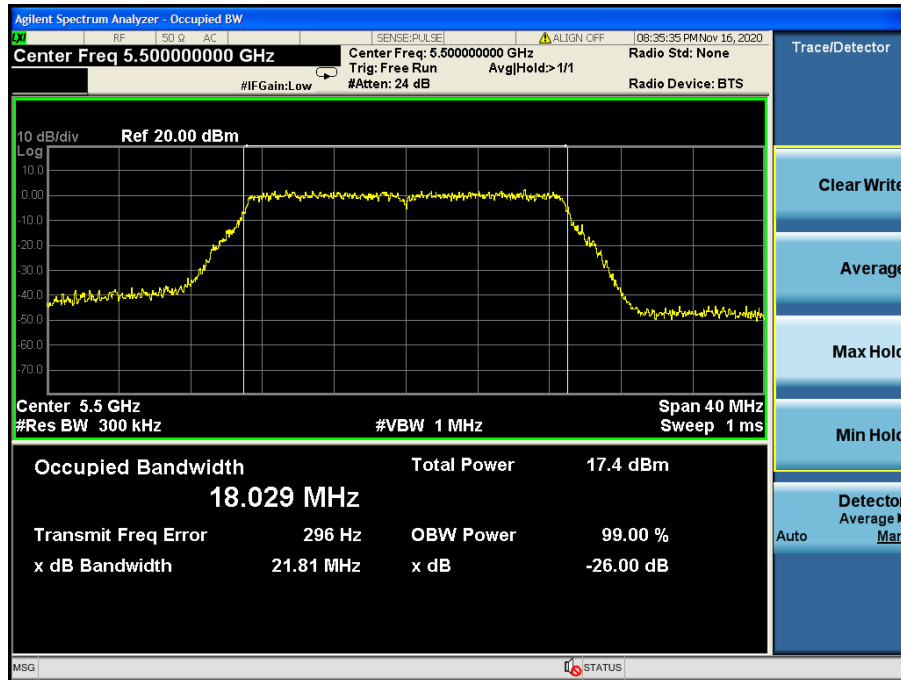
802.11n(20M) (5.47GHz-5.725GHz)
The Middle Channel 116: 5580MHz



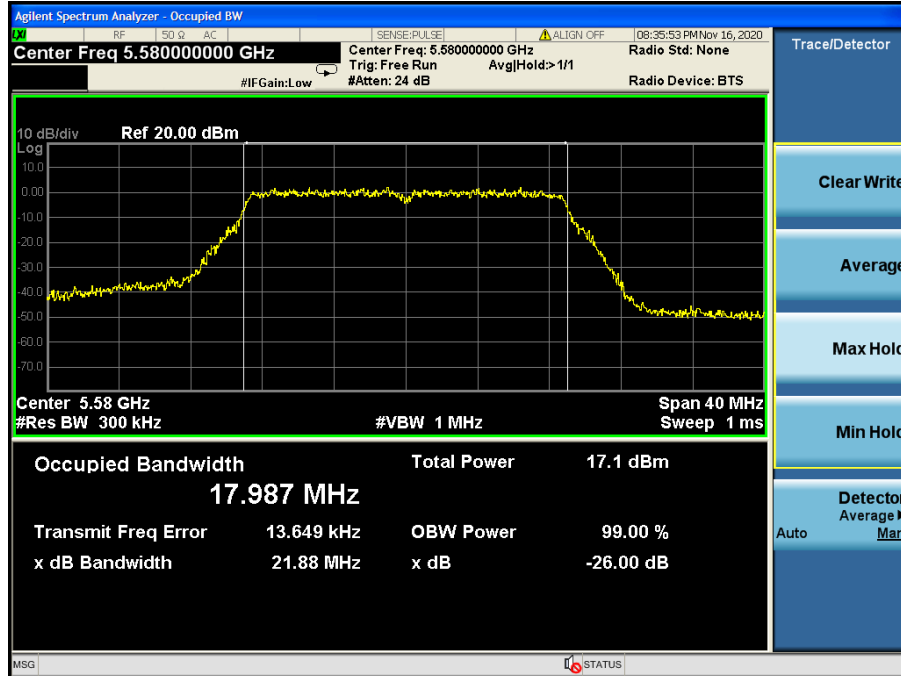
802.11n(20M) (5.47GHz-5.725GHz)
The High Channel 140: 5700MHz



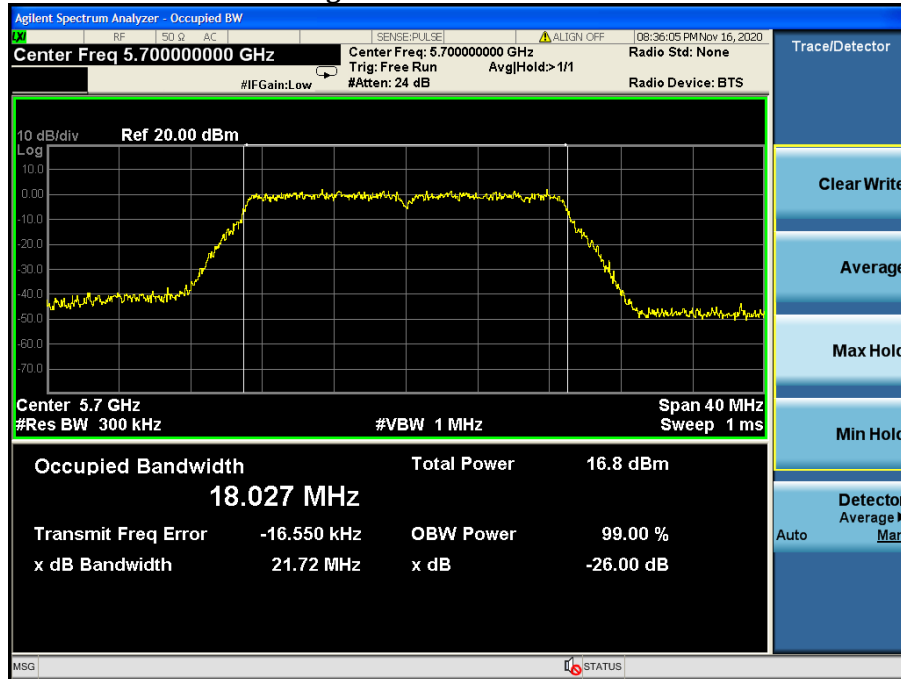
802.11ac (5.47GHz-5.725GHz) The Lowest Channel 100: 5500MHz



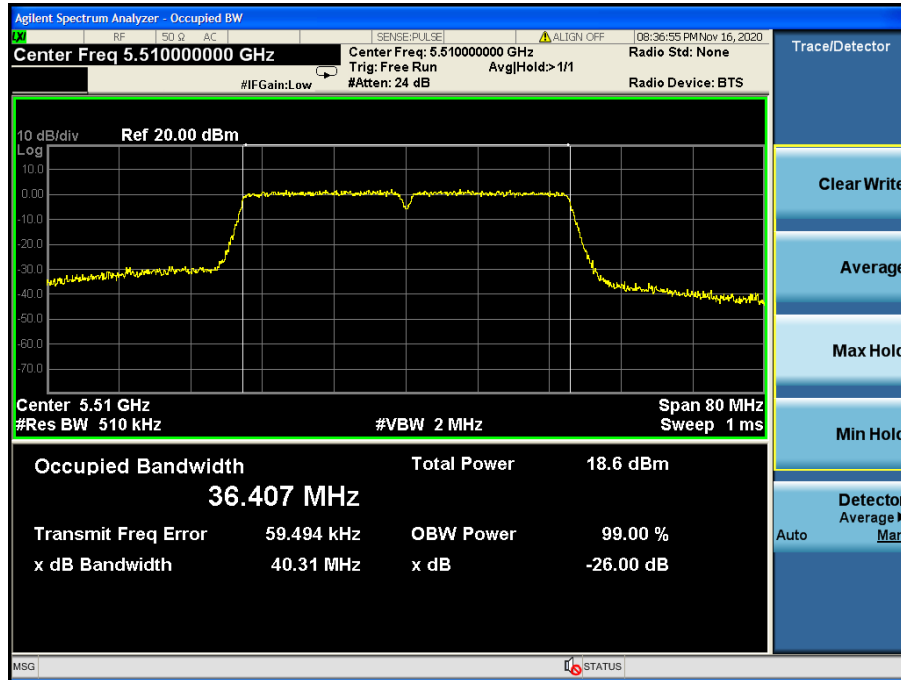
802.11ac (5.47GHz-5.725GHz) The Middle Channel 116: 5580MHz



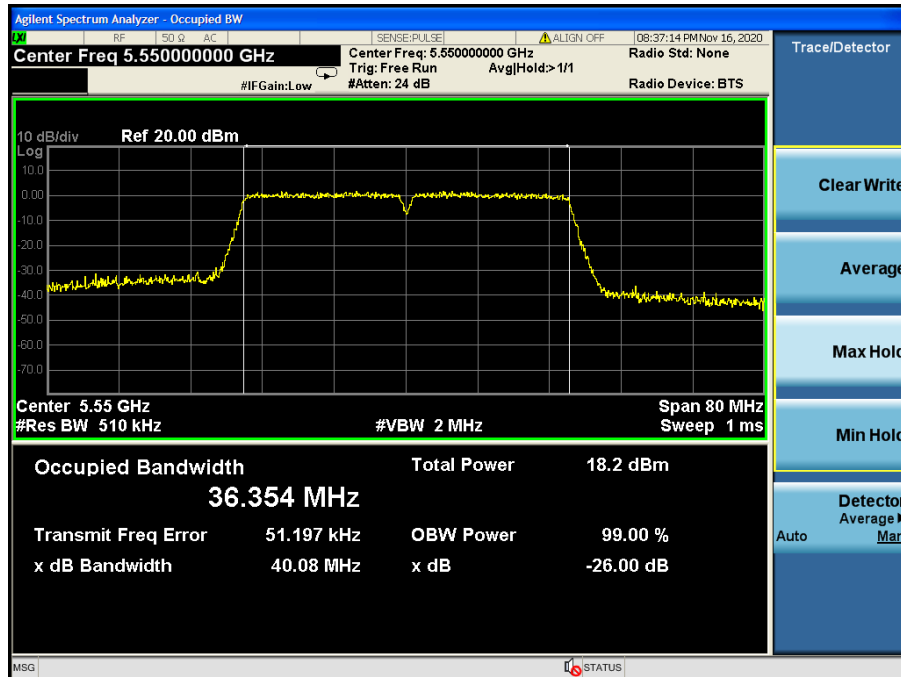
802.11ac (5.47GHz-5.725GHz) The High Channel 140: 5700MHz



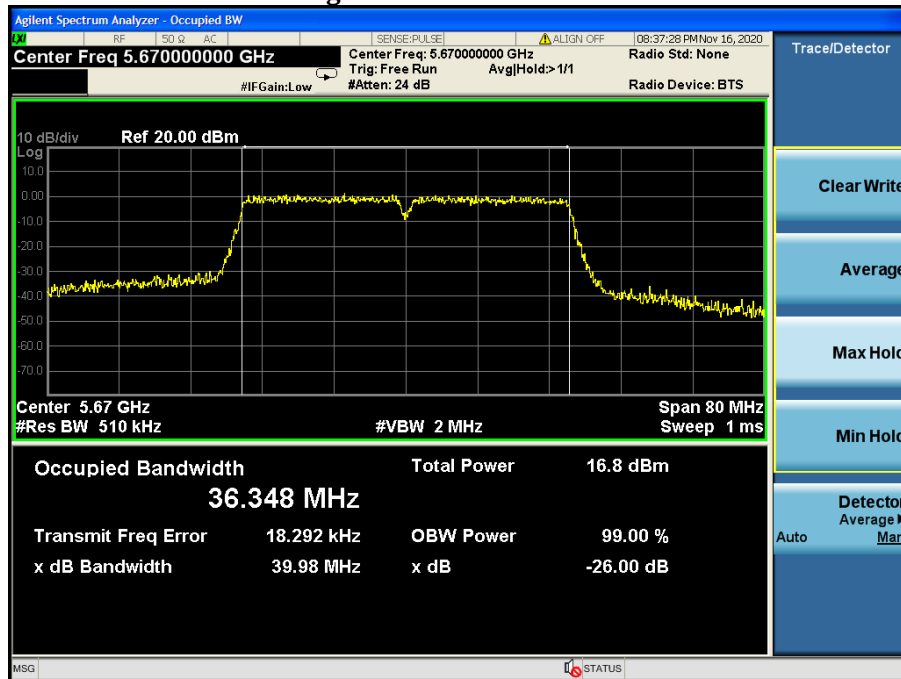
802.11n(40M) (5.47GHz-5.725GHz)
The Lowest Channel 102: 5510MHz



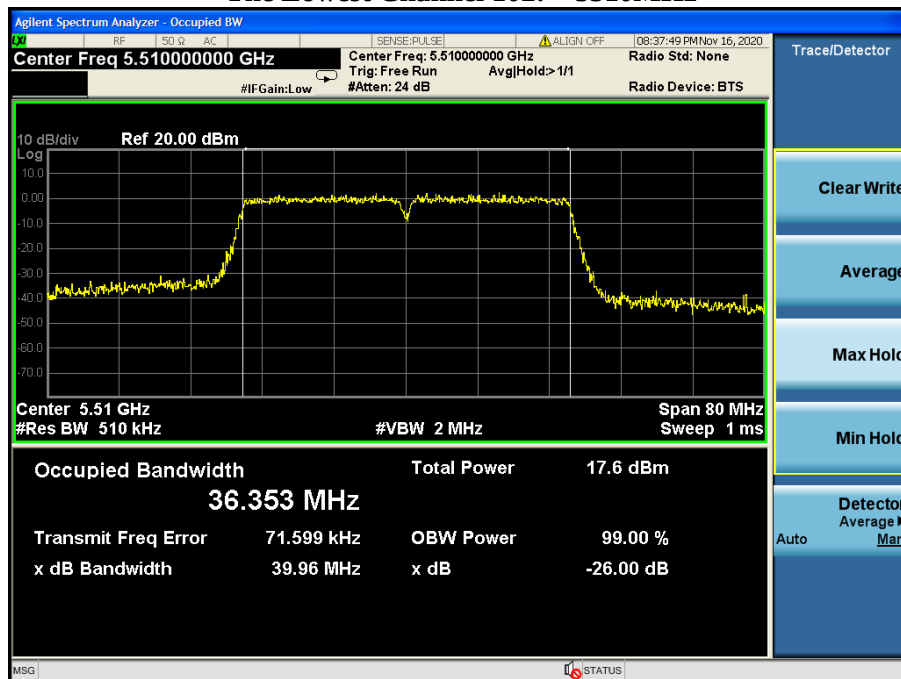
802.11n(40M) (5.47GHz-5.725GHz)
The Middle Channel 110: 5550MHz



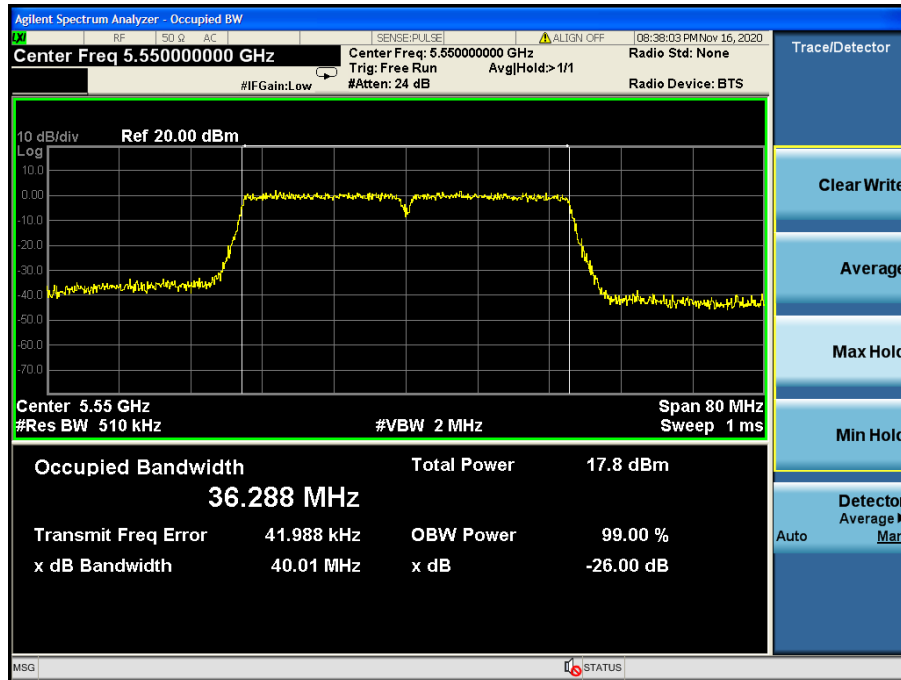
802.11n(40M) (5.47GHz-5.725GHz)
The High Channel 134: 5670MHz



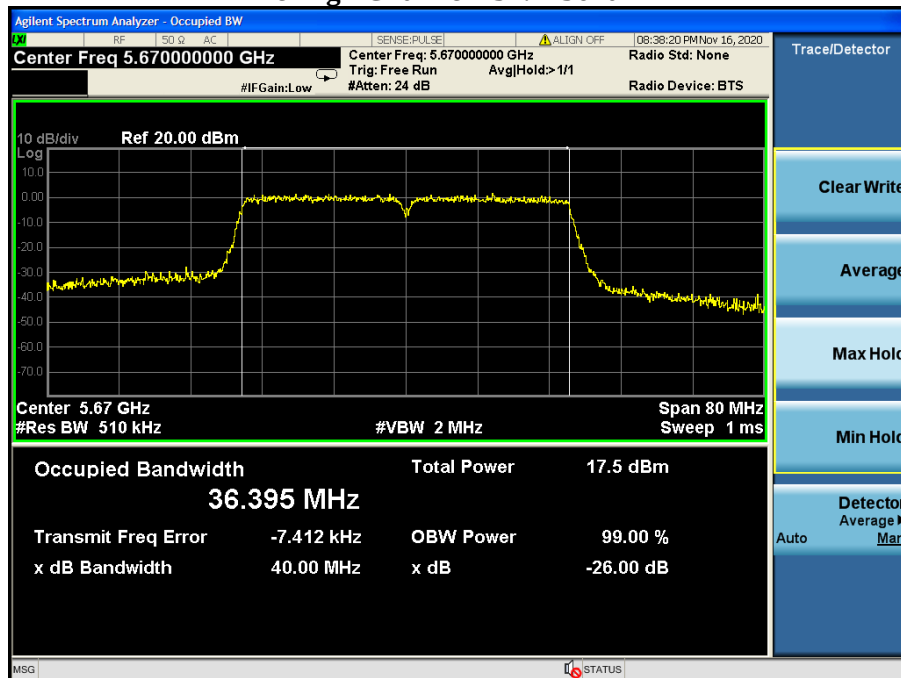
802.11ac(40M) (5.47GHz-5.725GHz)
The Lowest Channel 102: 5510MHz



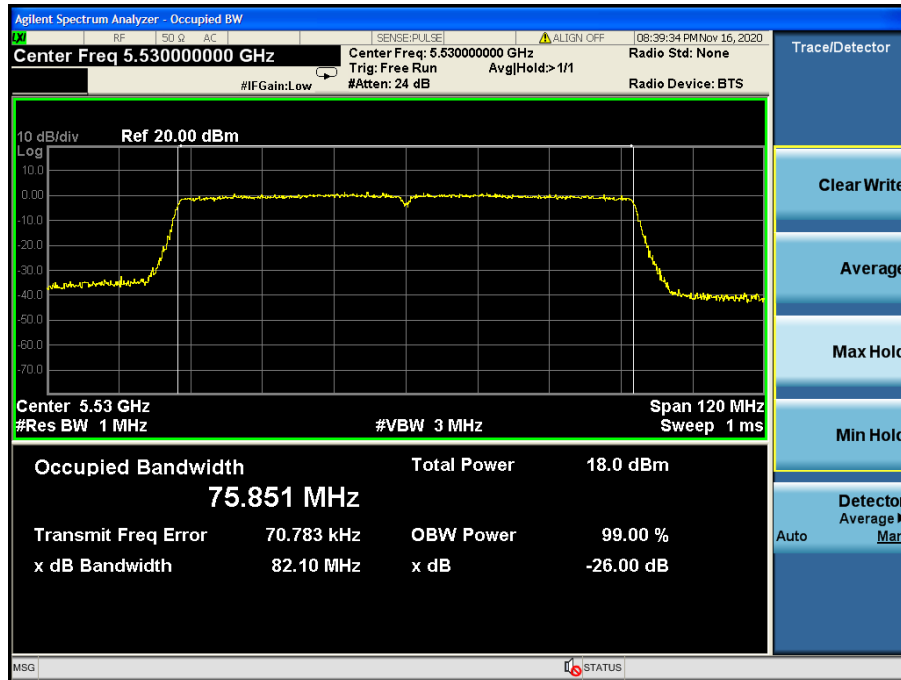
802.11ac(40M) (5.47GHz-5.725GHz)
The Middle Channel 110: 5550MHz



802.11ac(40M) (5.47GHz-5.725GHz)
The High Channel 134: 5670MHz



802.11ac(80M) (5.47GHz-5.725GHz) The Lowest Channel 106: 5530MHz



5 PEAK POWER DENSITY

5.1 APPLIED PROCEDURES / LIMIT

15.407(a) For UNII Device in the 5.15-5.25 GHz, 5.25-5.35 GHz and 5.47-5.725 GHz bands: peak power Density as follow.

Frequency Band	Limit
5.15 – 5.25 GHz	11dBm
5.25– 5.35GHz	11dBm
5.47 – 5.725 GHz	11dBm

5.2 TEST PROCEDURE

- a. The Transmitter output of EUT was connected to the spectrum analyzer.

Equipment mode: Spectrum analyzer

Detector function: Peak mode

SPAN: 40MHz

RBW: 1MHz

VBW: 3MHz

Center frequency: fundamental frequency tested.

Sweep time= 1msec.

- b. Using Peak Search to read the peak power after Maximum Hold function is completed.

5.3 DEVIATION FROM STANDARD

No deviation.

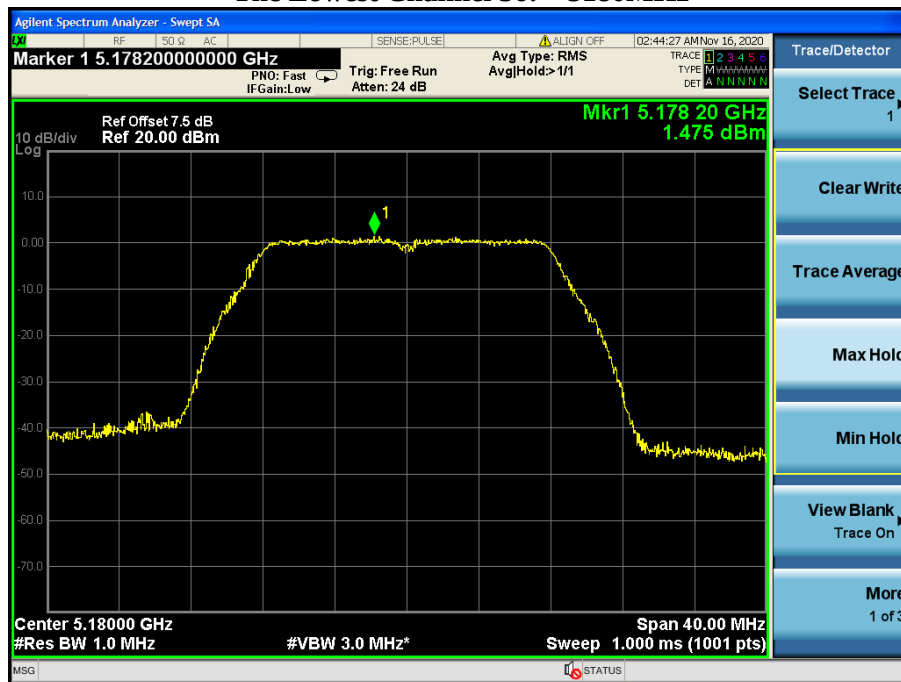
5.4 TEST RESULTS

ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

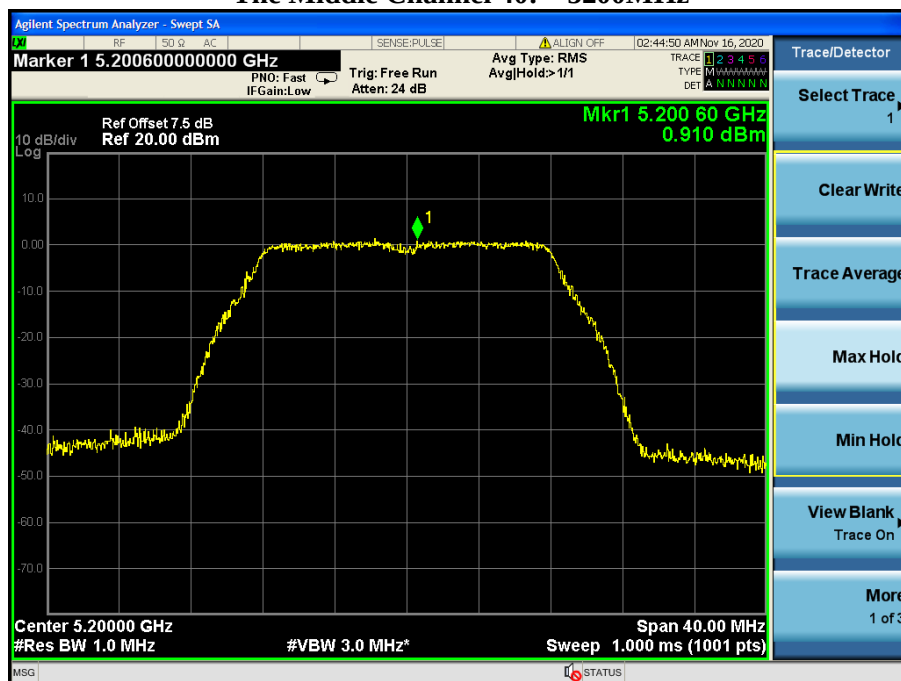
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	22 °C	Relative Humidity :	53%
Pressure :	1010 hPa	Test Power :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac80		
Test Date :	2020-11-16		

Test Mode	Channel	Channel Frequency (MHz)	Power Density (MHz) ANT 1	Power Density (MHz) ANT 2	Total Power Density (MHz)	Limit (dBm)	Result
802.11a (5.15GHz-5.25GHz) Data rate 6Mbps	Low	5180	1.475	1.114	--	11	Pass
	Middle	5200	0.910	0.875	--	11	Pass
	Highest	5240	1.432	1.135	--	11	Pass
802.11n(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	Low	5180	0.455	0.216	3.35	10.49	Pass
	Middle	5200	1.284	1.057	4.18	10.49	Pass
	Highest	5240	1.782	0.246	4.09	10.49	Pass
802.11ac(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	Low	5180	2.267	1.845	5.07	10.49	Pass
	Middle	5200	1.300	1.064	4.19	10.49	Pass
	Highest	5240	0.399	0.165	3.29	10.49	Pass
802.11n(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	Low	5190	-1.426	-1.722	1.44	10.49	Pass
	Highest	5230	-0.725	-0.936	2.18	10.49	Pass
802.11ac(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	Low	5190	-1.482	-1.557	1.49	10.49	Pass
	Highest	5230	-2.139	-2.238	0.82	10.49	Pass
802.11ac(80M) (5.15GHz-5.25GHz) Data rate 58.6Mbps	---	5210	-4.457	-4.793	-1.61	10.49	Pass

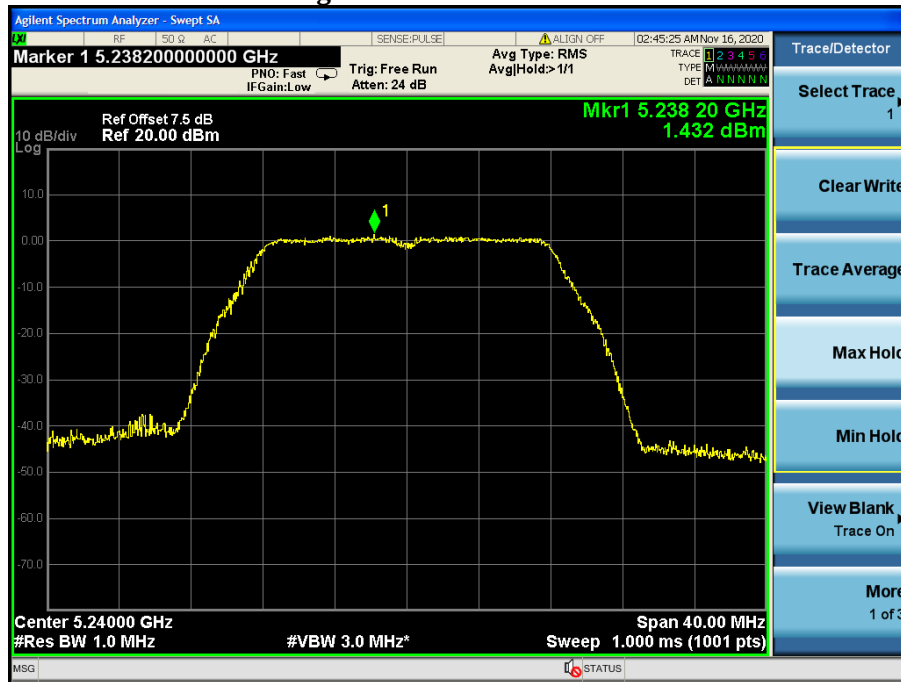
802.11a (5.15GHz-5.25GHz)
The Lowest Channel 36: 5180MHz



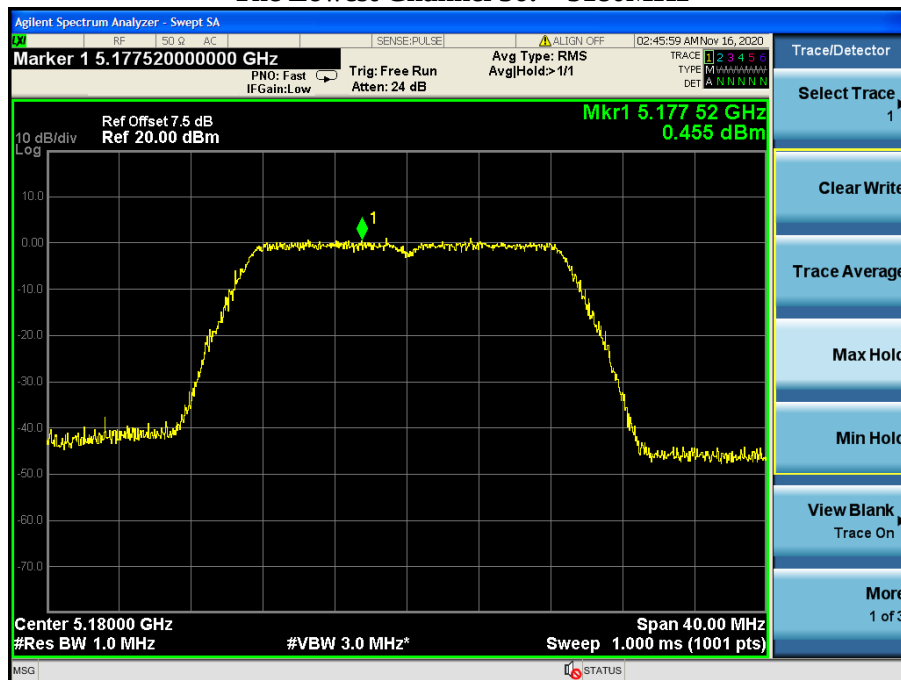
802.11a (5.15GHz-5.25GHz)
The Middle Channel 40: 5200MHz



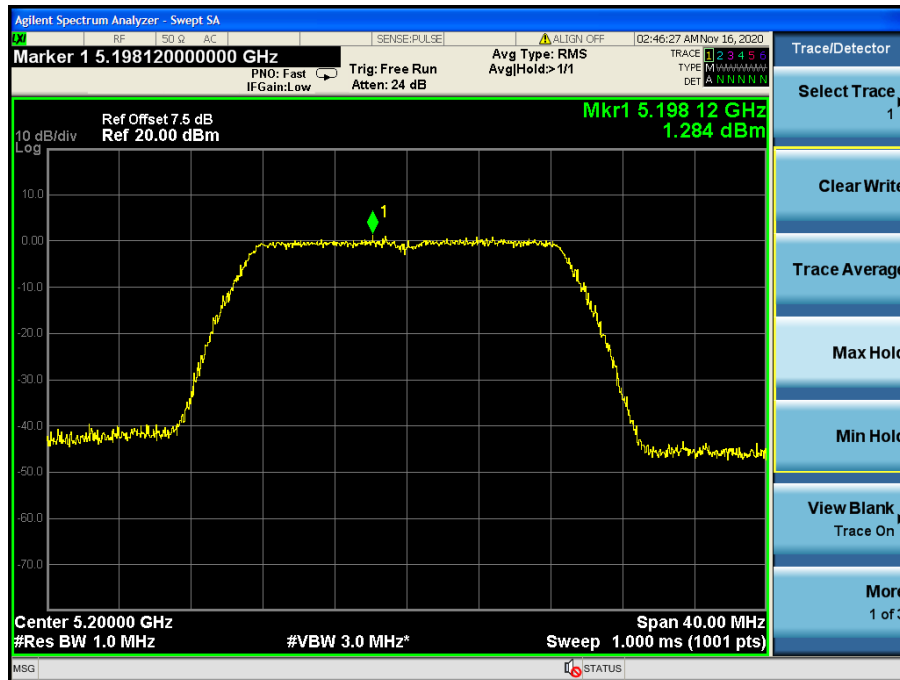
802.11a (5.15GHz-5.25GHz) The Highest Channel 48: 5240MHz



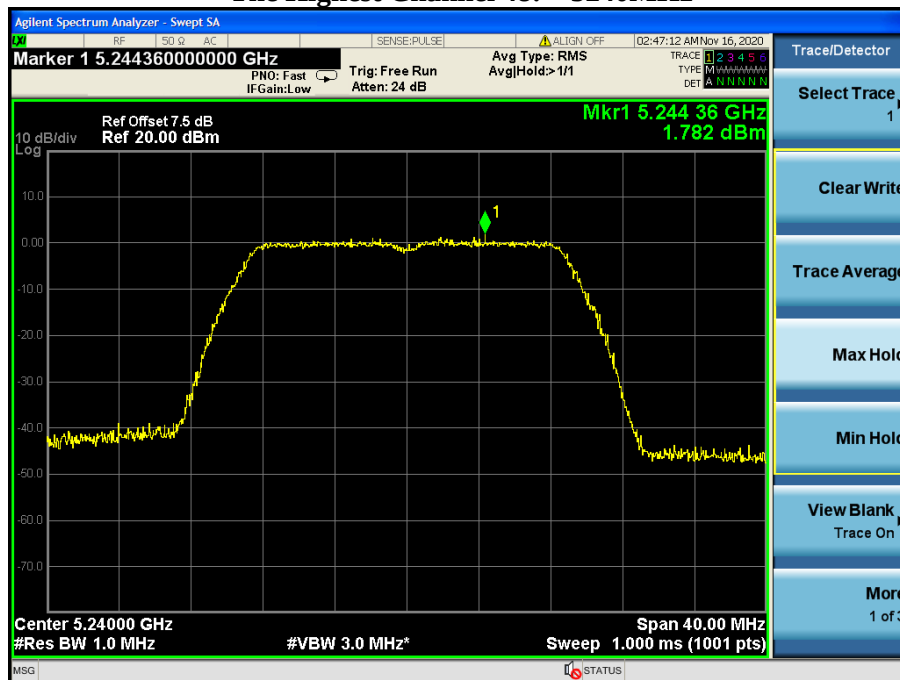
802.11n(20M) (5.15GHz-5.25GHz) The Lowest Channel 36: 5180MHz



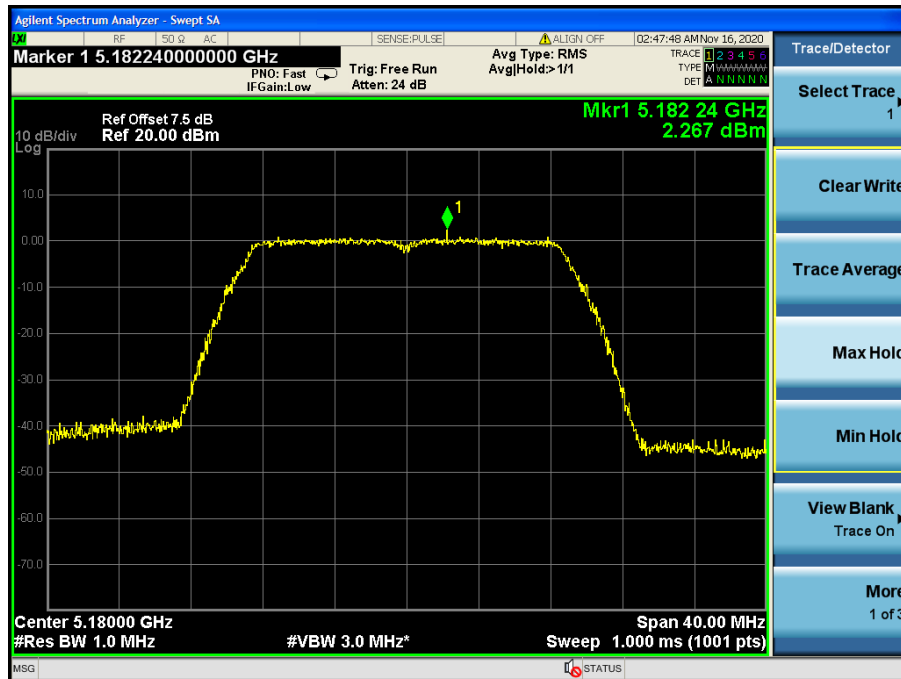
802.11n(20M) (5.15GHz-5.25GHz)
The Middle Channel 40: 5200MHz



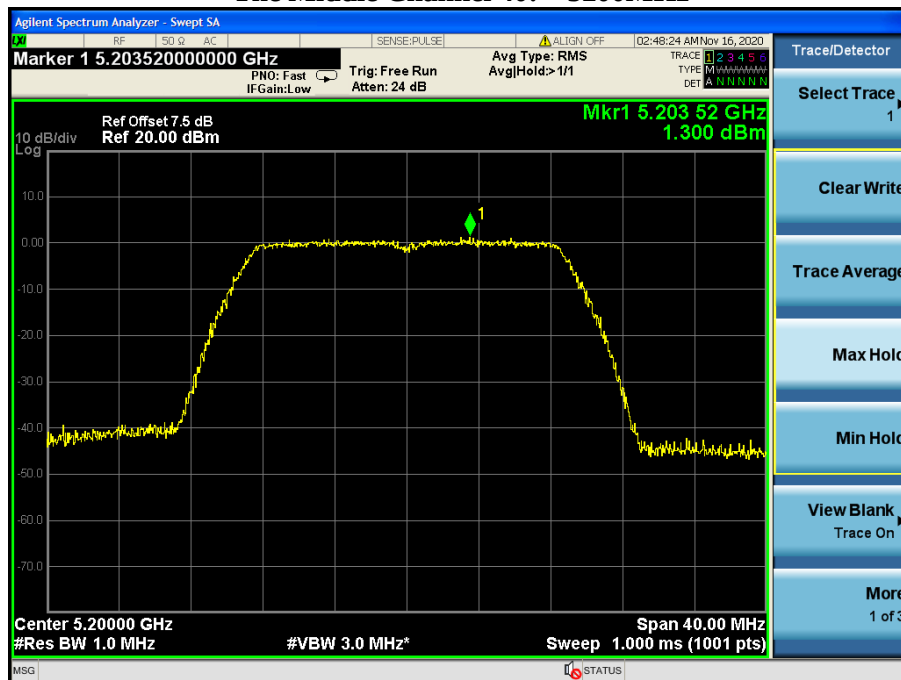
802.11n(20M) (5.15GHz-5.25GHz)
The Highest Channel 48: 5240MHz



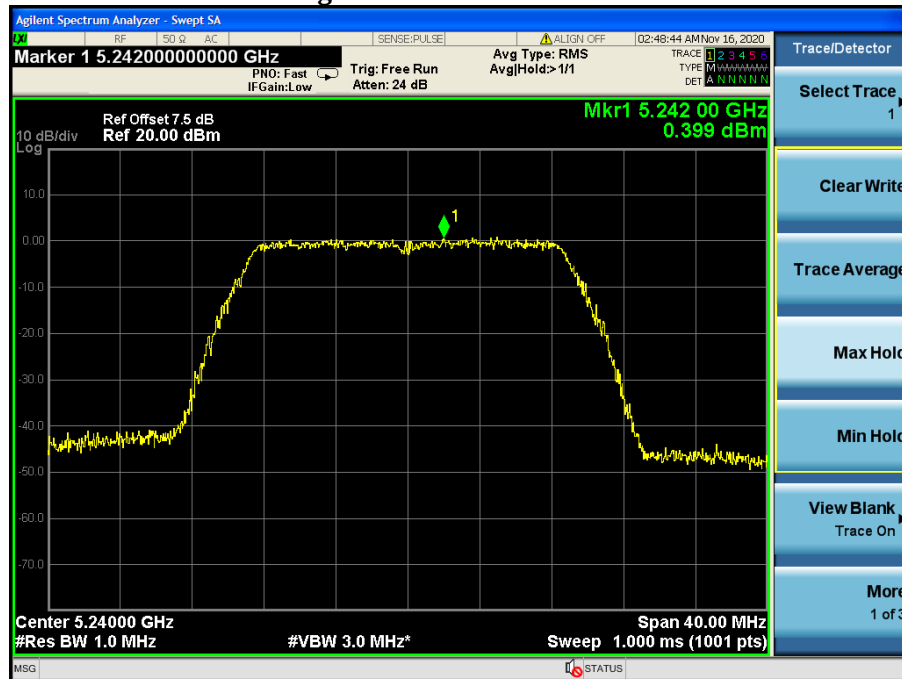
802.11ac (5.15GHz-5.25GHz)
The Lowest Channel 36: 5180MHz



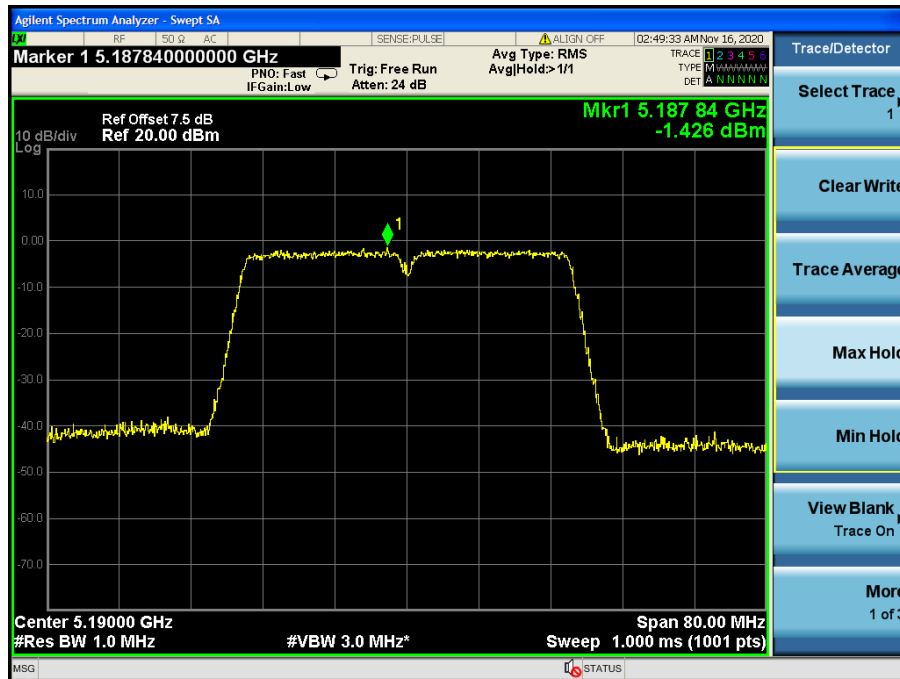
802.11ac (5.15GHz-5.25GHz)
The Middle Channel 40: 5200MHz



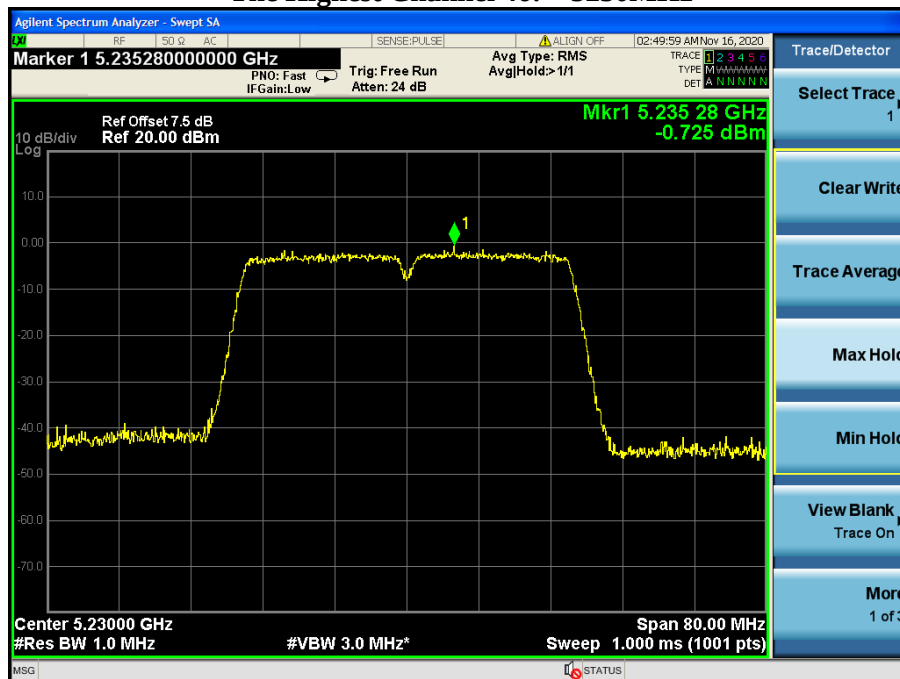
802.11ac (5.15GHz-5.25GHz)
The Highest Channel 48: 5240MHz



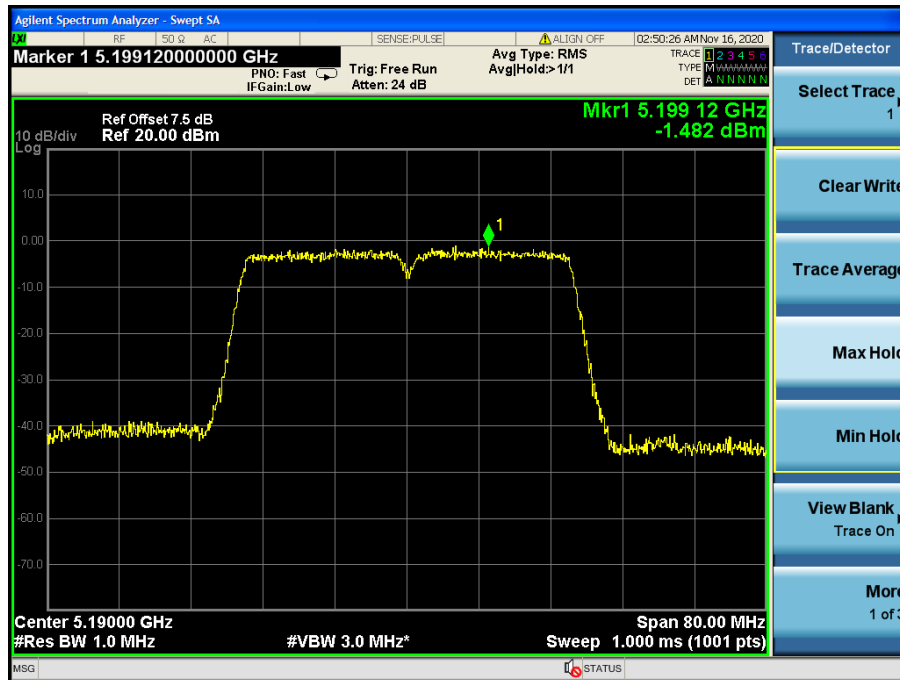
802.11n(40M) (5.15GHz-5.25GHz)
The Lowest Channel 38: 5190MHz



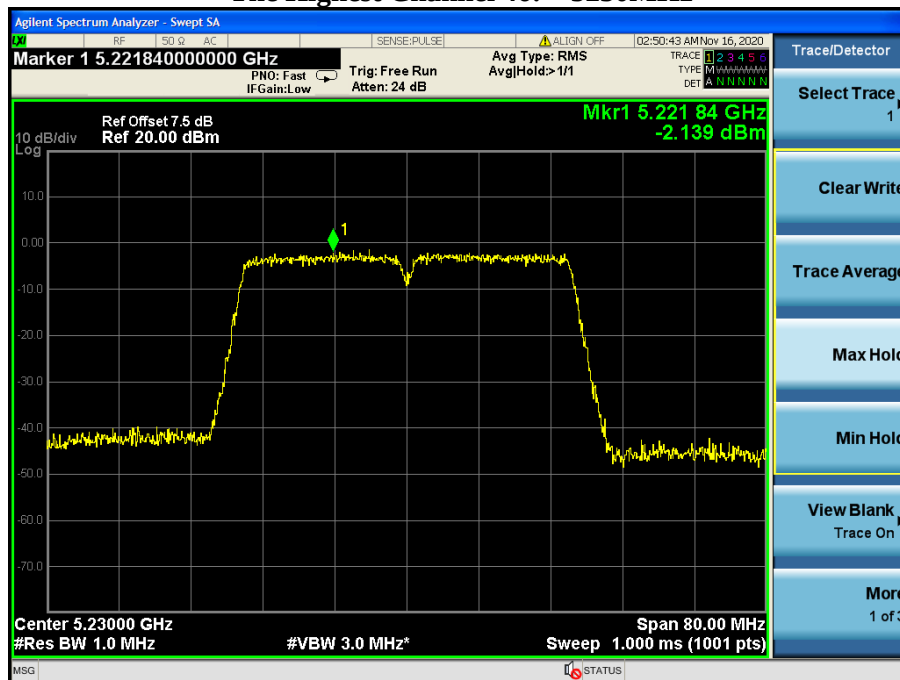
802.11n(40M) (5.15GHz-5.25GHz)
The Highest Channel 46: 5230MHz



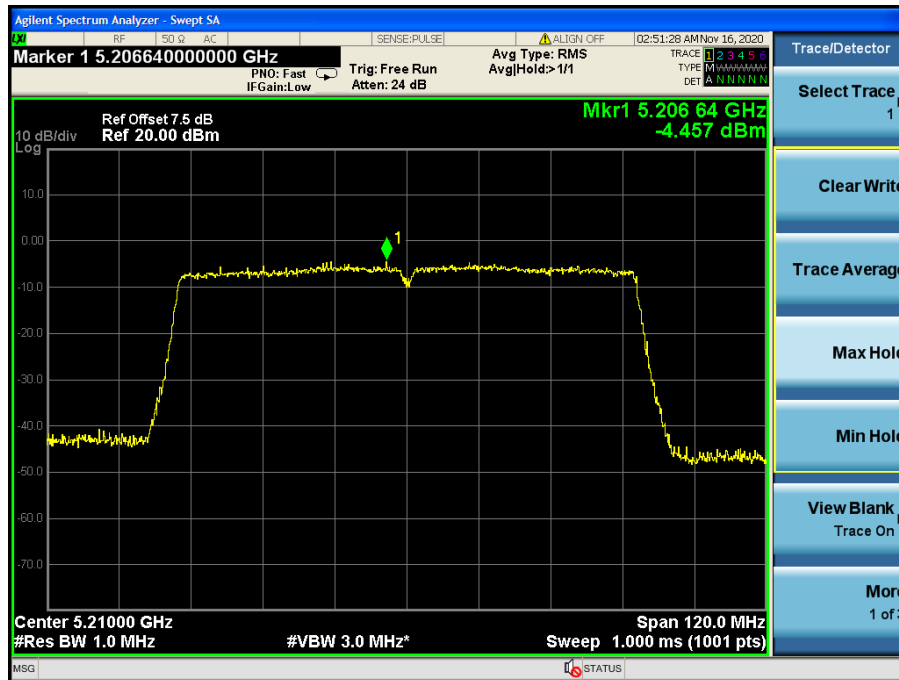
802.11ac(40M) (5.15GHz-5.25GHz)
The Lowest Channel 38: 5190MHz



802.11ac(40M) (5.15GHz-5.25GHz)
The Highest Channel 46: 5230MHz



802.11ac(80M) (5.15GHz-5.25GHz)
The Lowest Channel 42: 5210MHz

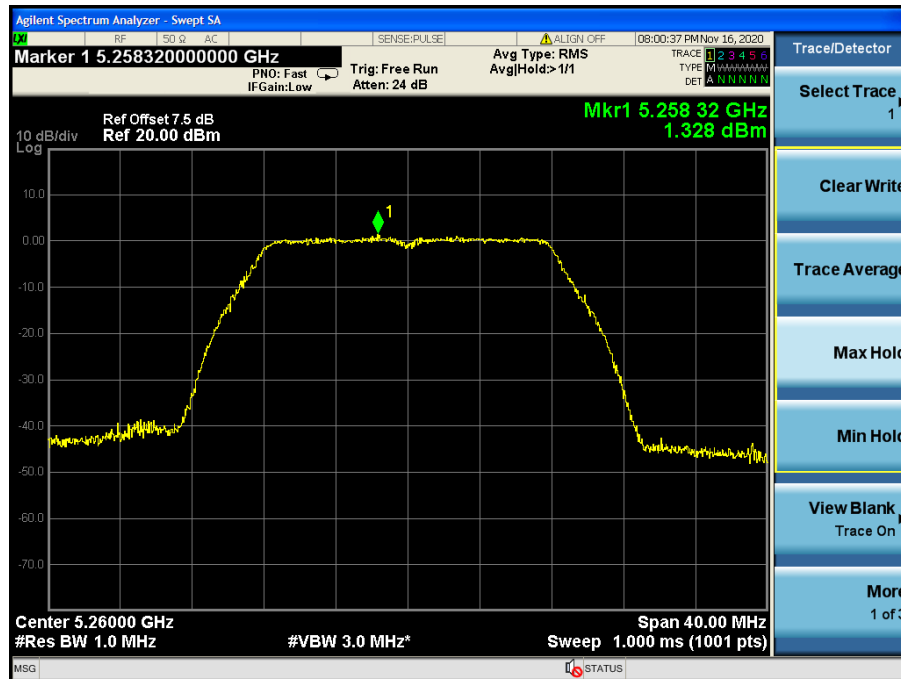


ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

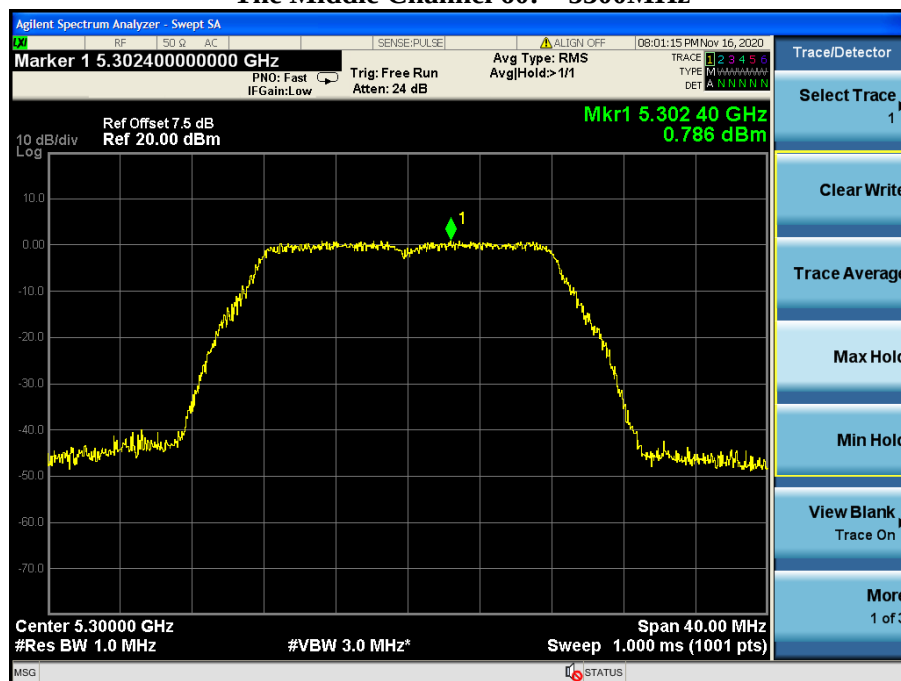
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	22 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac80		
Test Date :	2020-11-16		

Test Mode	Channel	Channel Frequency (MHz)	Power Density (MHz) ANT 1	Power Density (MHz) ANT 2	Total Power Density (MHz)	Limit (dBm)	Result
802.11a (5.25GHz-5.35GHz) Data rate 6Mbps	Low	5260	1.328	1.071	--	11	Pass
	Middle	5300	0.786	0.536	--	11	Pass
	Highest	5320	1.177	1.044	--	11	Pass
802.11n(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	Low	5260	0.372	0.157	3.28	10.49	Pass
	Middle	5300	0.921	0.768	3.86	10.49	Pass
	Highest	5320	0.539	0.341	3.45	10.49	Pass
802.11ac(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	Low	5260	0.299	0.184	3.25	10.49	Pass
	Middle	5300	0.667	0.476	3.58	10.49	Pass
	Highest	5320	0.881	0.556	3.73	10.49	Pass
802.11n(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	Low	5270	-2.048	-2.228	0.87	10.49	Pass
	Highest	5310	-1.081	-1.297	1.82	10.49	Pass
802.11ac(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	Low	5270	-2.492	-2.638	0.45	10.49	Pass
	Highest	5310	-1.867	-2.019	1.07	10.49	Pass
802.11ac(80M) (5.25GHz-5.35GHz) Data rate 58.6Mbps	---	5290	-5.716	-6.007	-2.85	10.49	Pass

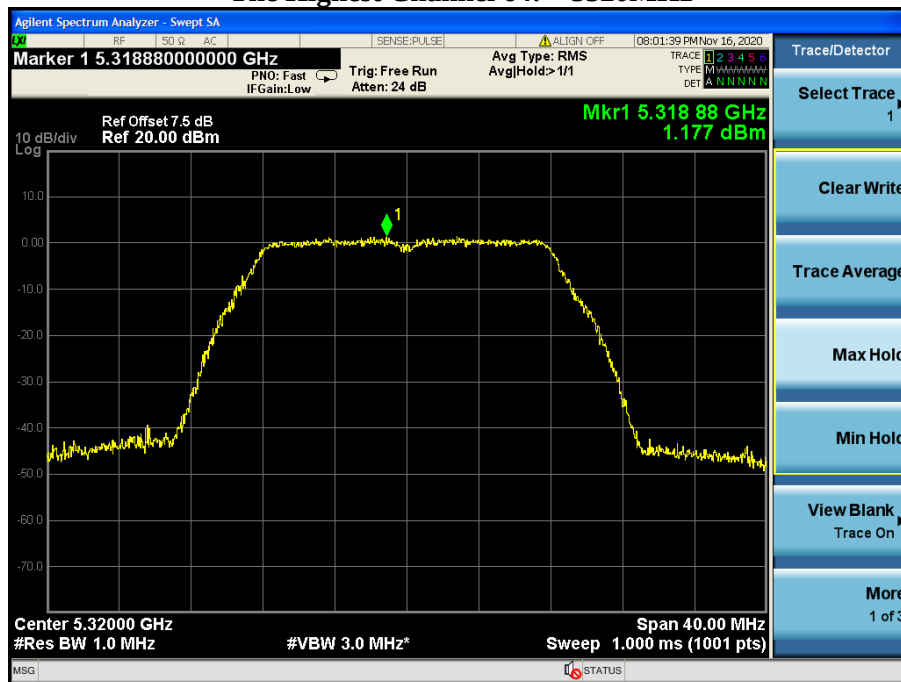
802.11a (5.25GHz-5.35GHz)
The Lowest Channel 52: 5260MHz



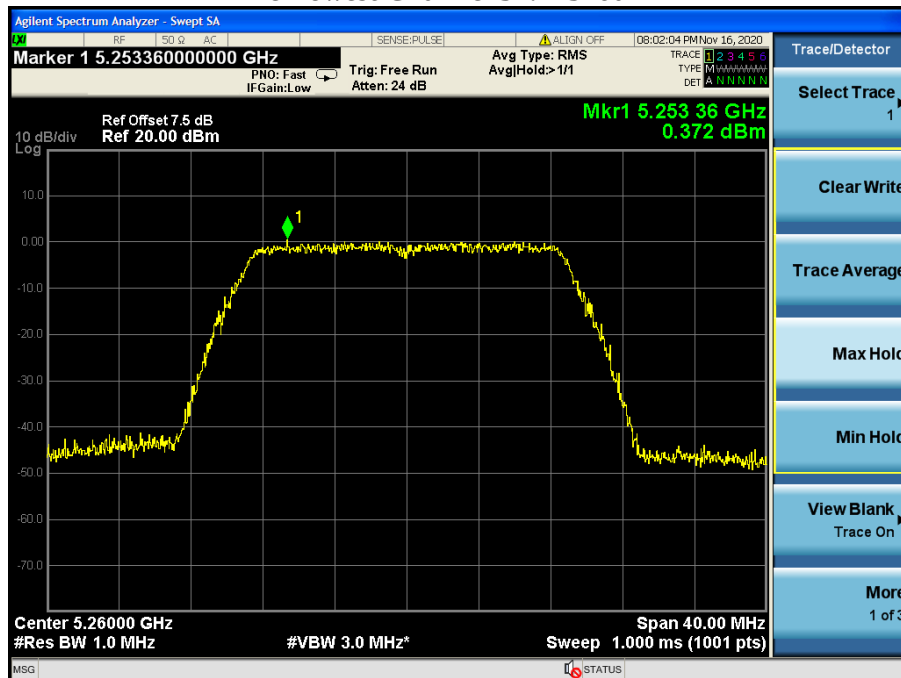
802.11a (5.25GHz-5.35GHz)
The Middle Channel 60: 5300MHz



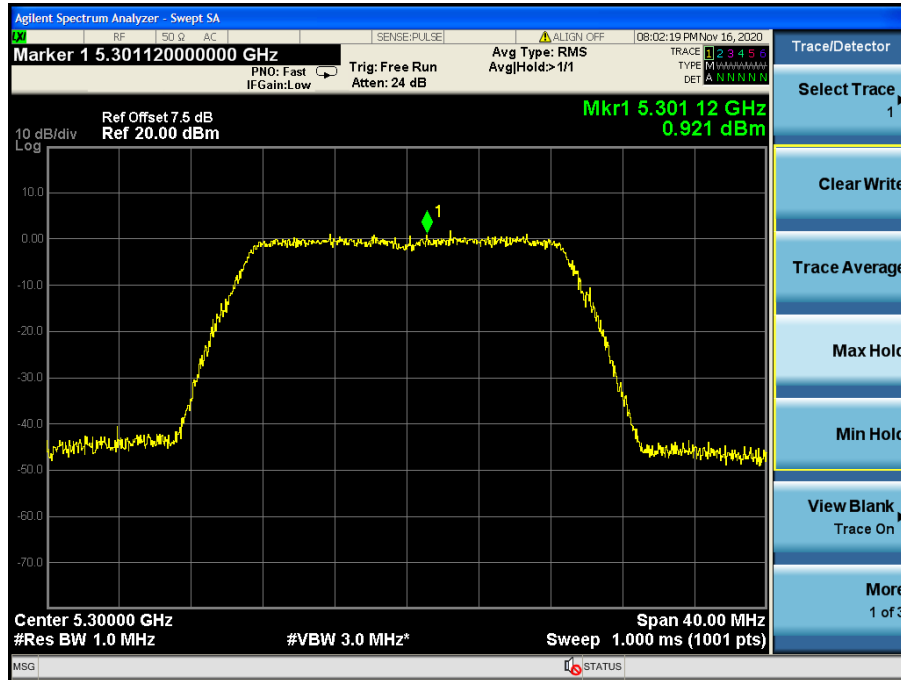
802.11a (5.25GHz-5.35GHz)
The Highest Channel 64: 5320MHz



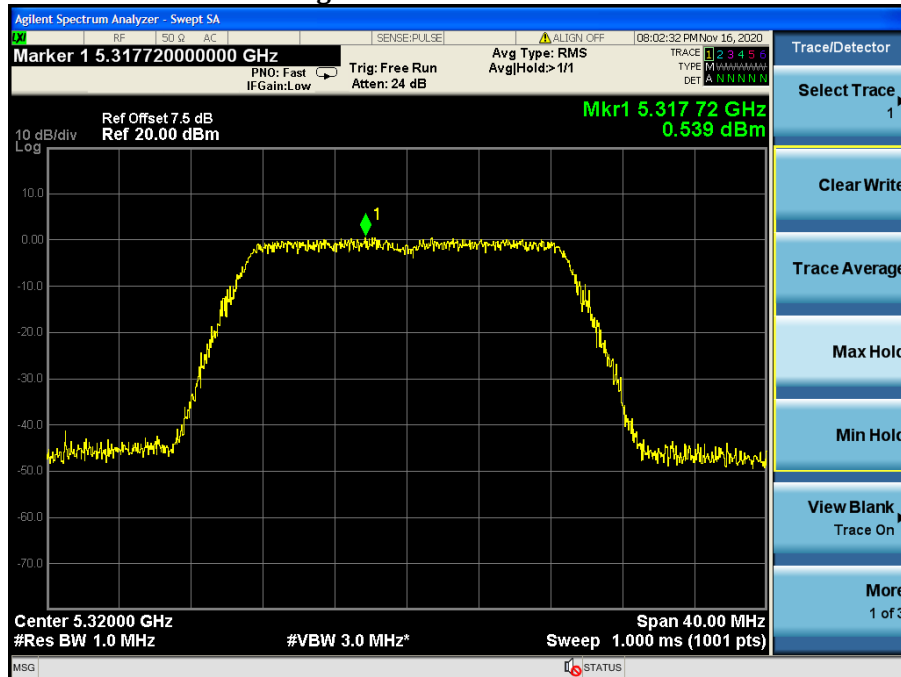
802.11n(20M) (5.25GHz-5.35GHz)
The Lowest Channel 52: 5260MHz



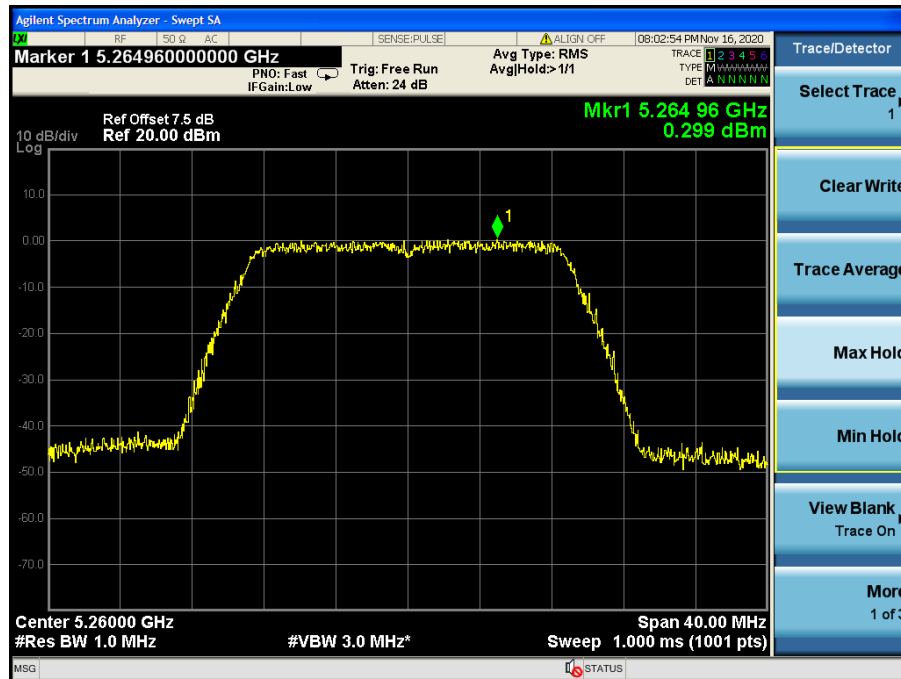
802.11n(20M) (5.25GHz-5.35GHz)
The Middle Channel 60: 5300MHz



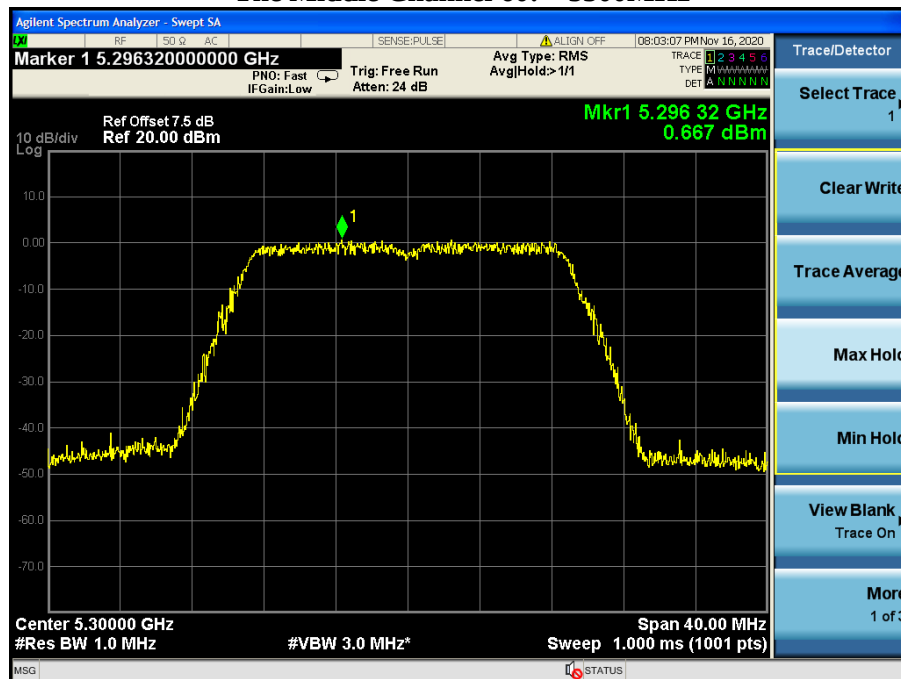
802.11n(20M) (5.25GHz-5.35GHz)
The Highest Channel 64: 5320MHz



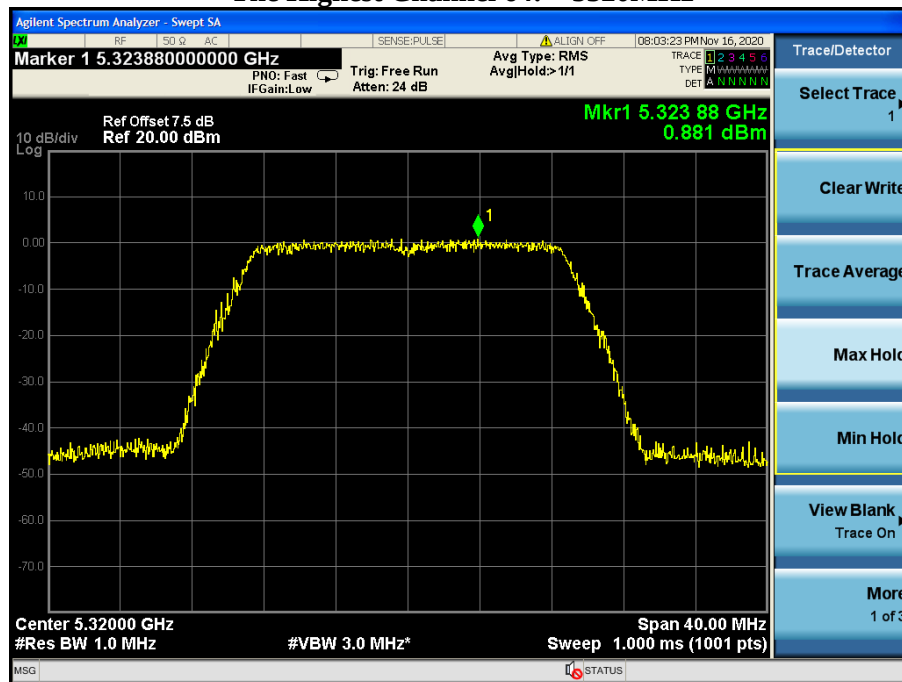
802.11ac (5.25GHz-5.35GHz) The Lowest Channel 52: 5260MHz



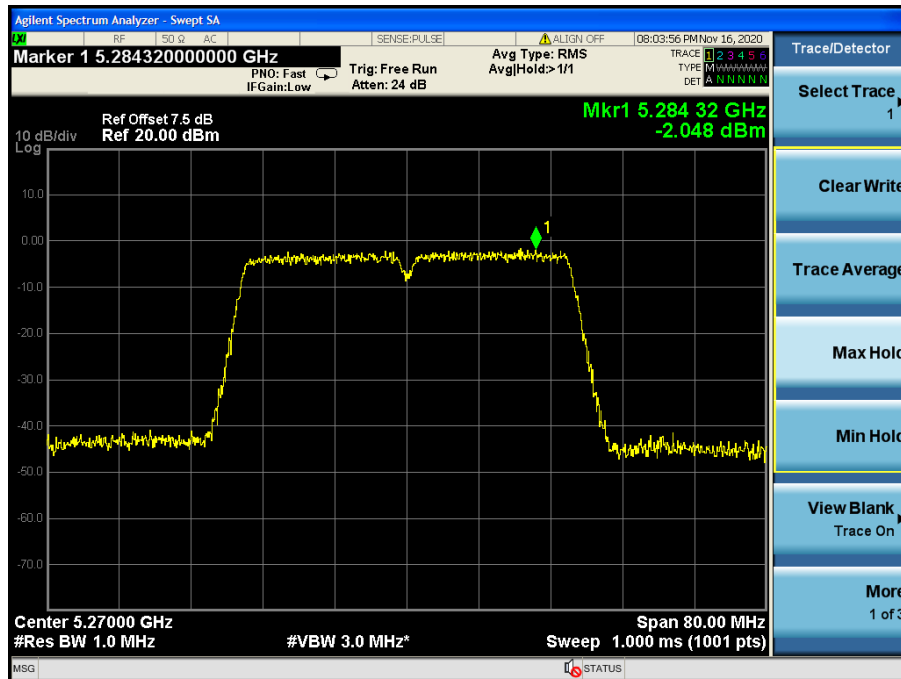
802.11ac (5.25GHz-5.35GHz) The Middle Channel 60: 5300MHz



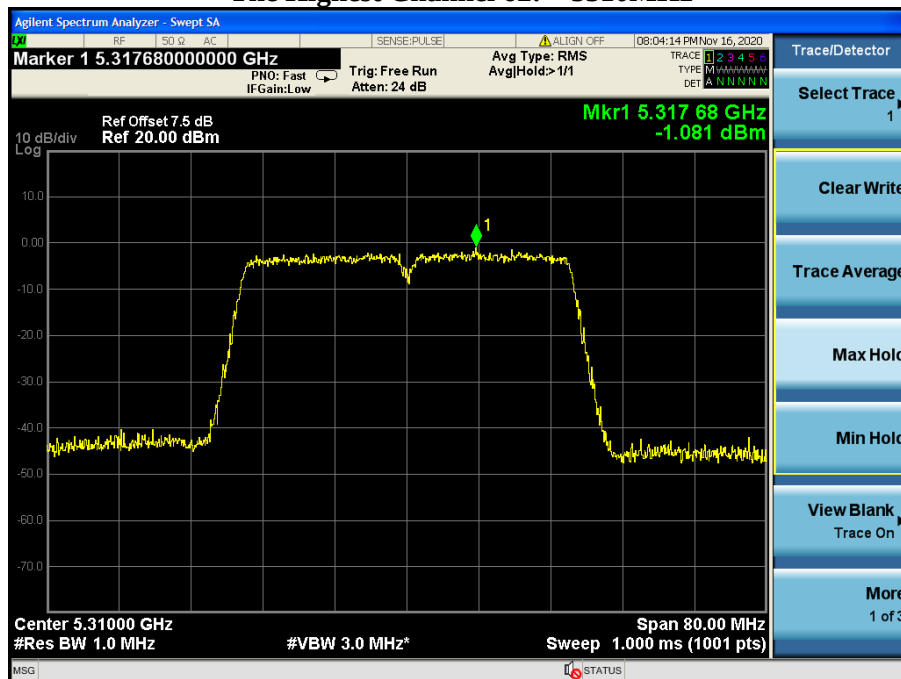
802.11ac (5.25GHz-5.35GHz)
The Highest Channel 64: 5320MHz



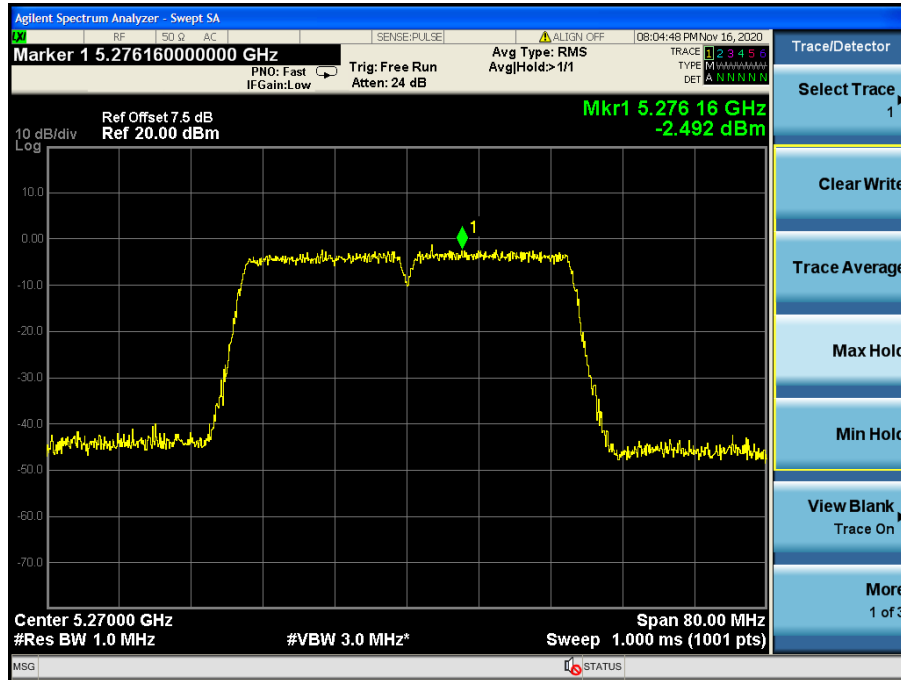
802.11n(40M) (5.25GHz-5.35GHz)
The Lowest Channel 54: 5270MHz



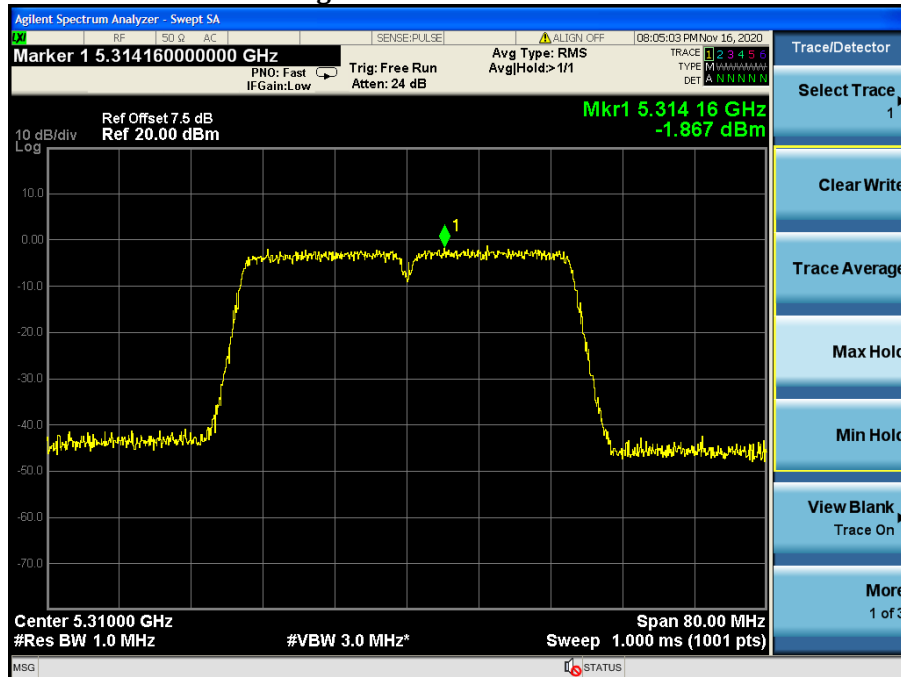
802.11n(40M) (5.25GHz-5.35GHz)
The Highest Channel 62: 5310MHz



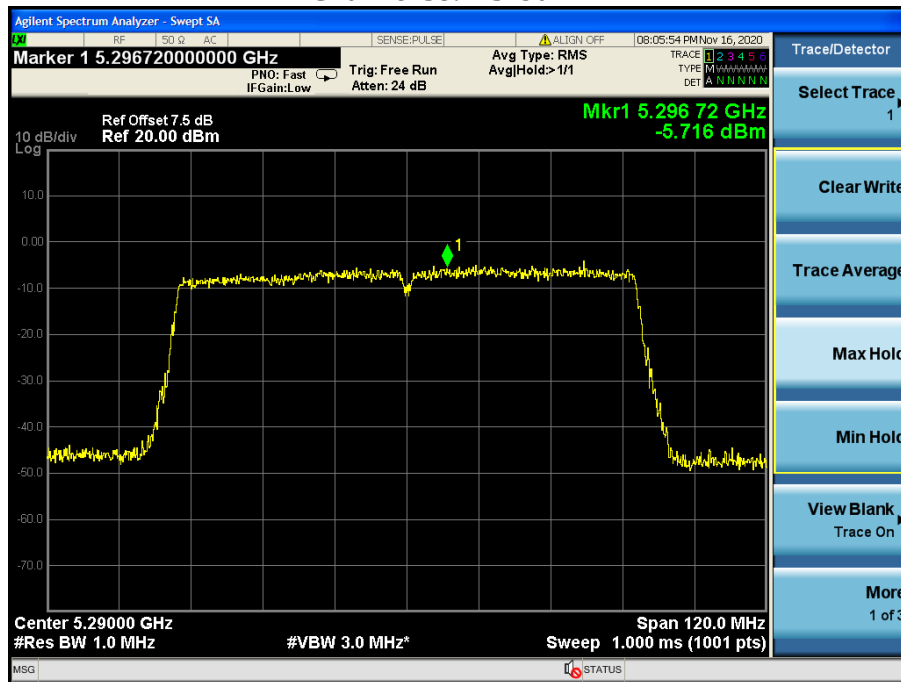
802.11ac(40M) (5.25GHz-5.35GHz)
The Lowest Channel 54: 5270MHz



802.11ac(40M) (5.25GHz-5.35GHz)
The Highest Channel 62: 5310MHz



802.11ac(80M) (5.25GHz-5.35GHz)
Channel 58: 5290MHz

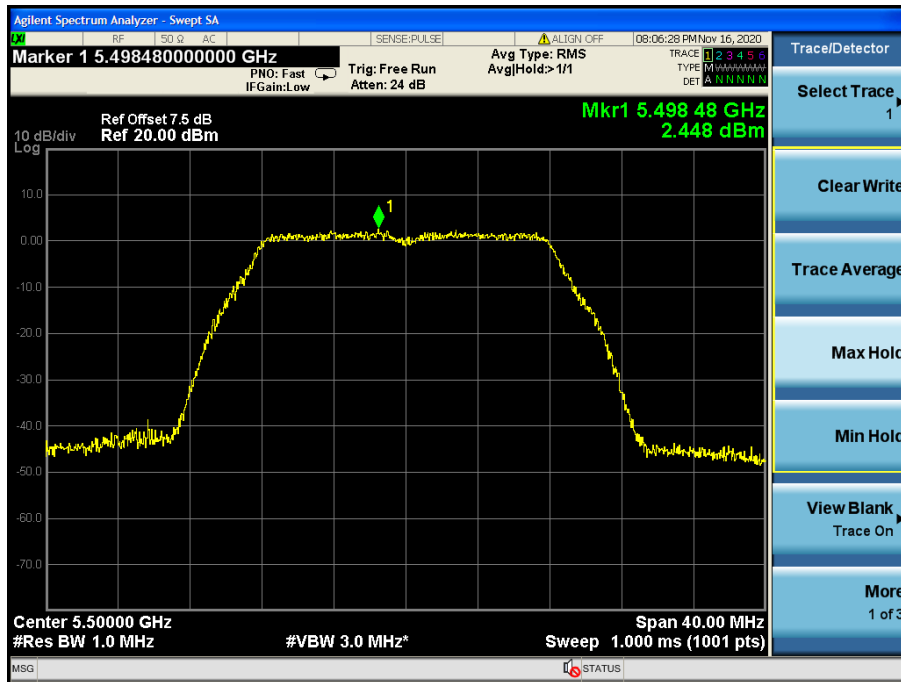


ANT 1(2) Represent the value of antenna 1 and 2, The worst data is 1 Antenna a ,only shown
Antenna 1 Plot

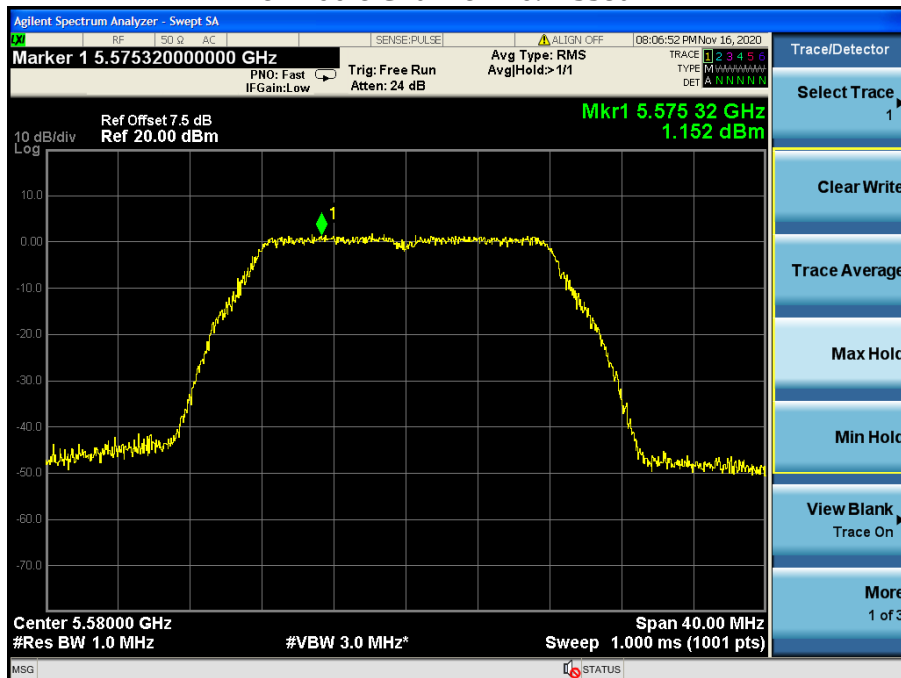
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	22 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11a/n20/ac20/n40/ac40/ac80		
Test Date :	2020-11-16		

Test Mode	Channel	Channel Frequency (MHz)	Power Density (MHz) ANT 1	Power Density (MHz) ANT 2	Total Power Density (MHz)	Limit (dBm)	Result
802.11a (5.47GHz-5.725GHz) Data rate 6Mbps	Low	5500	2.448	2.135	--	11	Pass
	Middle	5580	1.152	1.006	--	11	Pass
	Highest	5700	2.033	1.984	--	11	Pass
802.11n(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	Low	5500	1.650	1.356	4.52	10.49	Pass
	Middle	5580	0.885	0.517	3.72	10.49	Pass
	Highest	5700	1.444	1.321	4.39	10.49	Pass
802.11ac(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	Low	5500	1.842	1.665	4.76	10.49	Pass
	Middle	5580	1.319	1.047	4.20	10.49	Pass
	Highest	5700	1.839	1.584	4.72	10.49	Pass
802.11n(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	Low	5510	-0.724	-0.955	2.17	10.49	Pass
	Middle	5550	-0.347	-0.576	2.55	10.49	Pass
	Highest	5670	-1.603	-1.958	1.23	10.49	Pass
802.11ac(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	Low	5510	-0.681	-0.774	2.28	10.49	Pass
	Middle	5550	-1.050	-1.238	1.87	10.49	Pass
	Highest	5670	-0.363	-0.570	2.55	10.49	Pass
802.11ac(80M) (5.47GHz-5.725GHz) Data rate 58.6Mbps	---	5530	-3.510	-3.653	-0.57	10.49	Pass

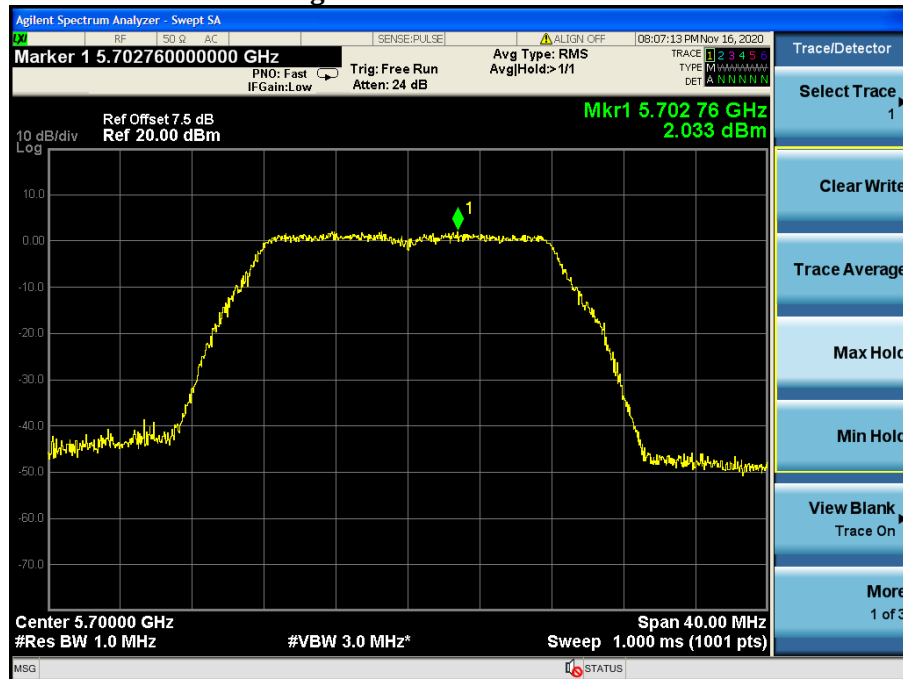
802.11a (5.47GHz-5.725GHz) The Lowest Channel 100: 5500MHz



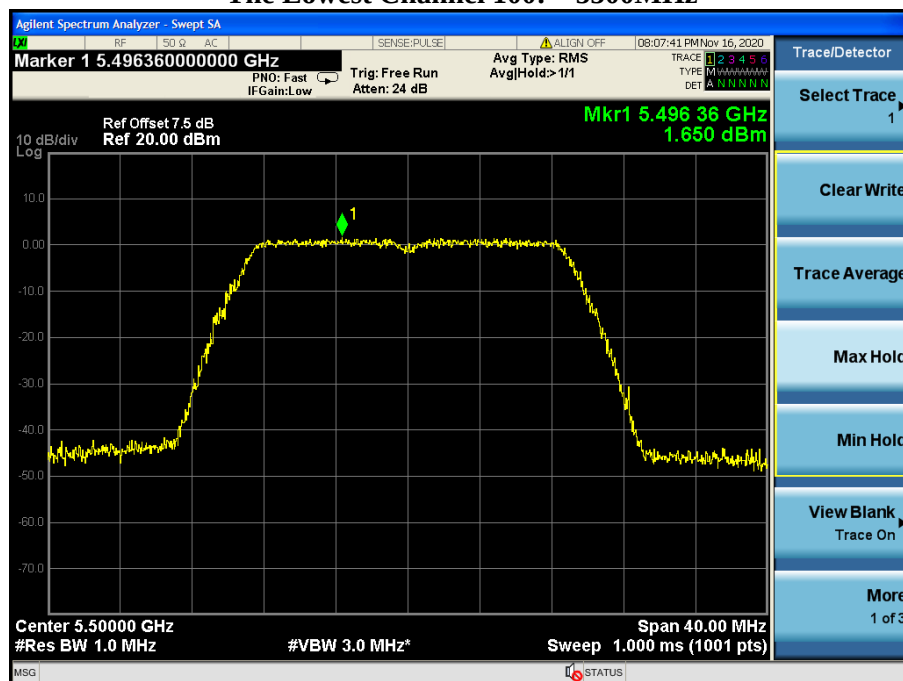
802.11a (5.47GHz-5.725GHz) The Middle Channel 116: 5580MHz



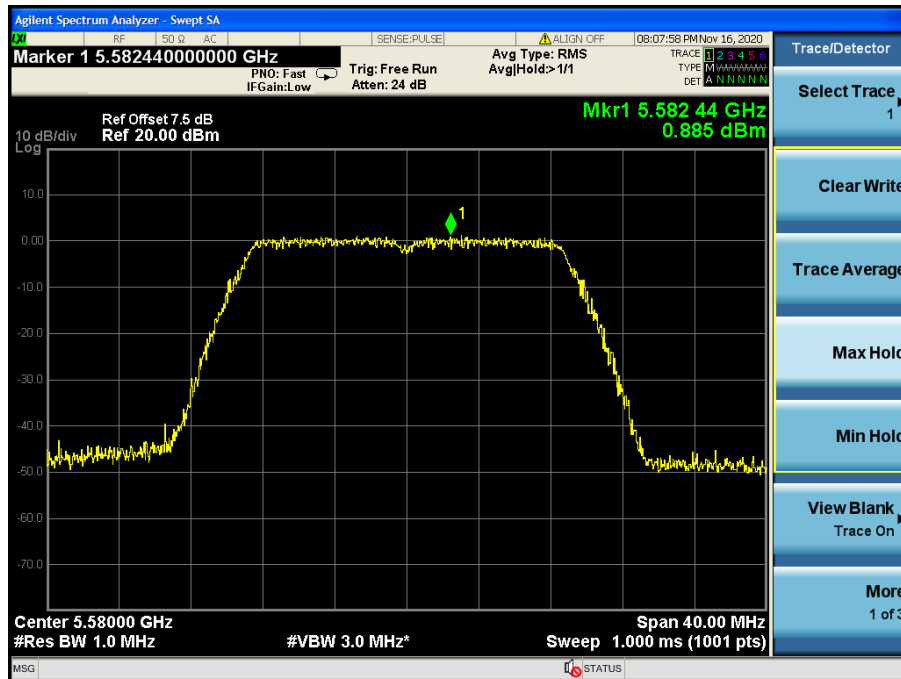
802.11a (5.47GHz-5.725GHz)
The Highest Channel 140: 5700MHz



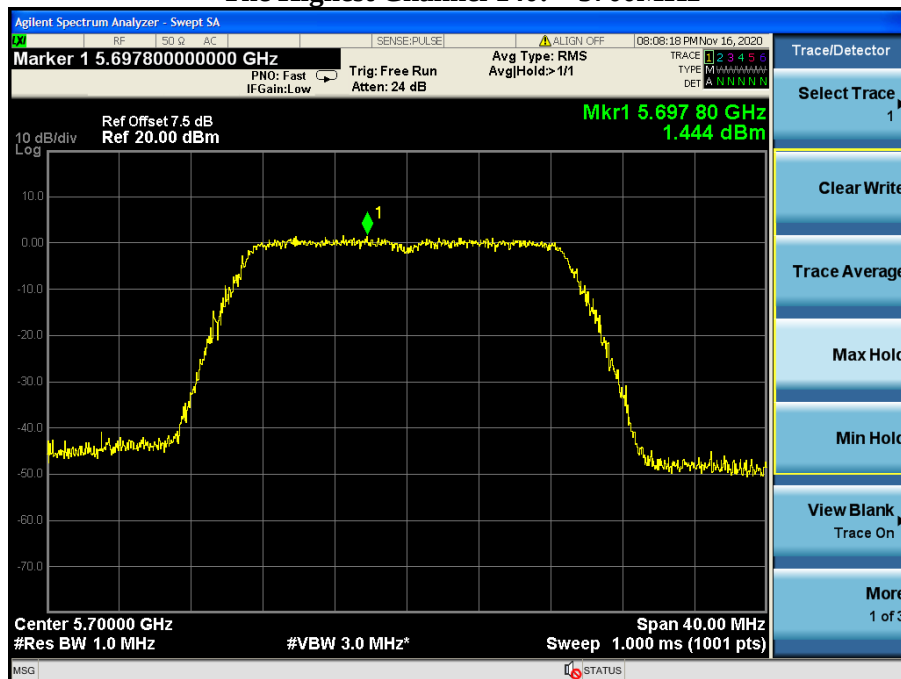
802.11n(20M) (5.47GHz-5.725GHz)
The Lowest Channel 100: 5500MHz



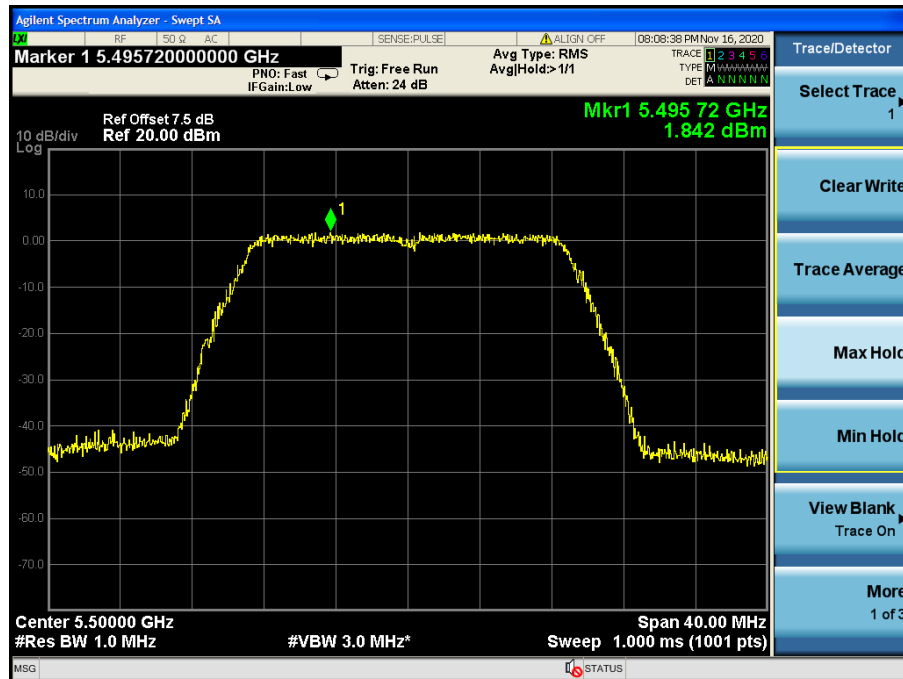
802.11n(20M) (5.47GHz-5.725GHz)
The Middle Channel 116: 5580MHz



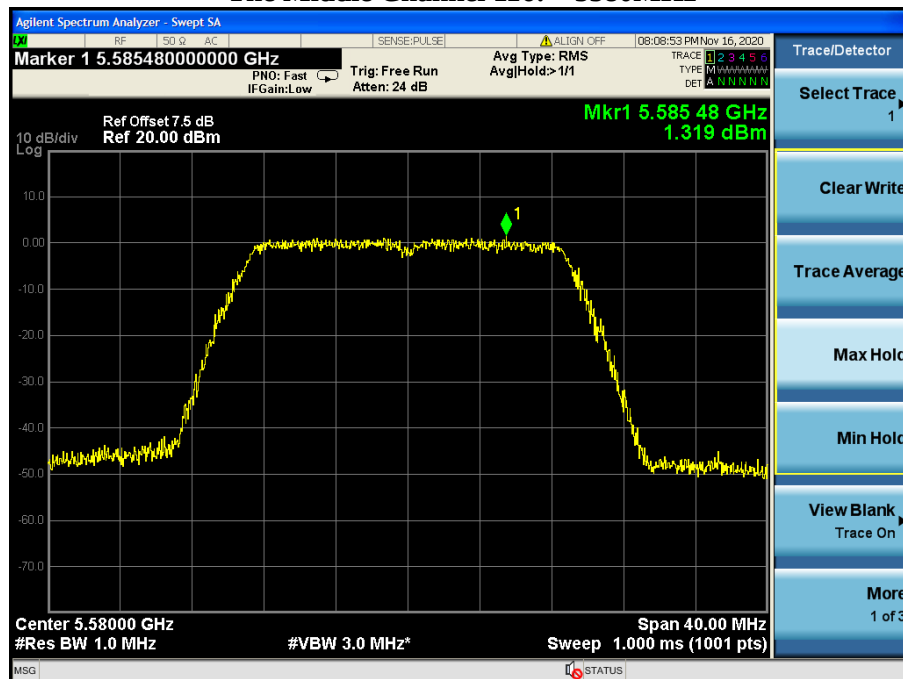
802.11n(20M) (5.47GHz-5.725GHz)
The Highest Channel 140: 5700MHz



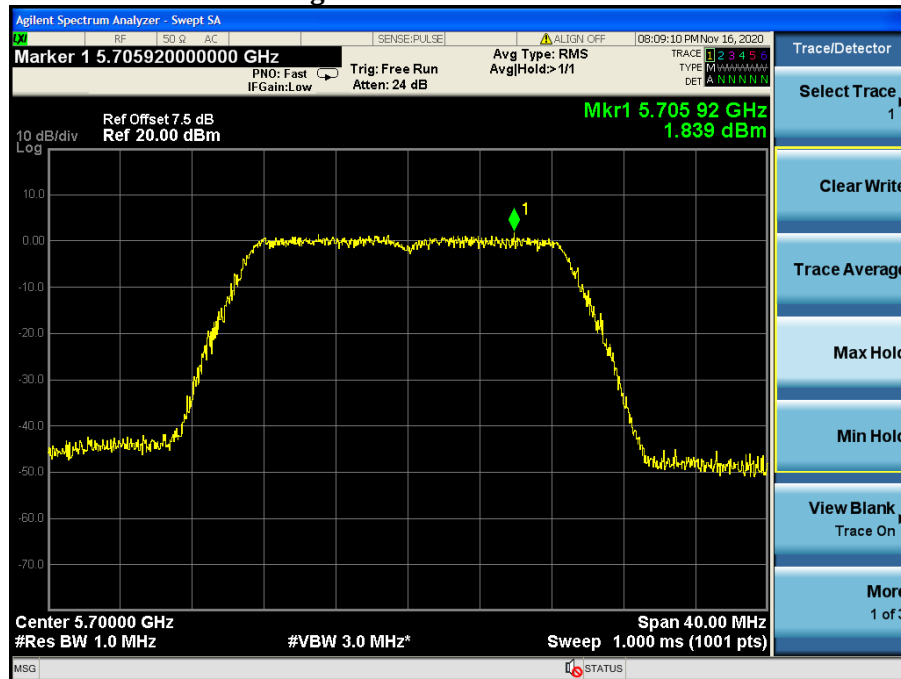
802.11ac (5.47GHz-5.725GHz)
The Lowest Channel 100: 5500MHz



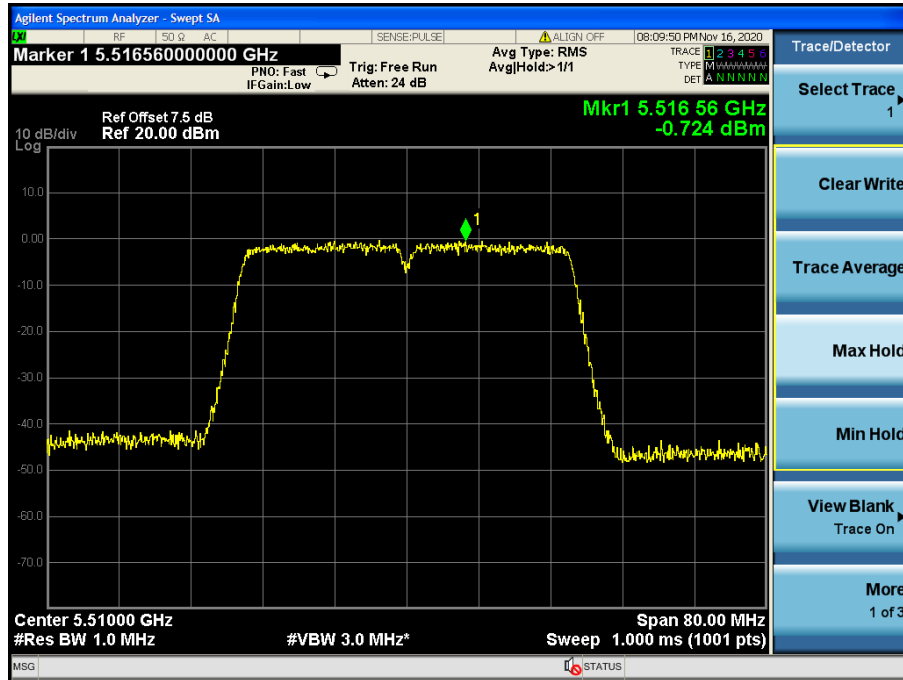
802.11ac (5.47GHz-5.725GHz)
The Middle Channel 116: 5580MHz



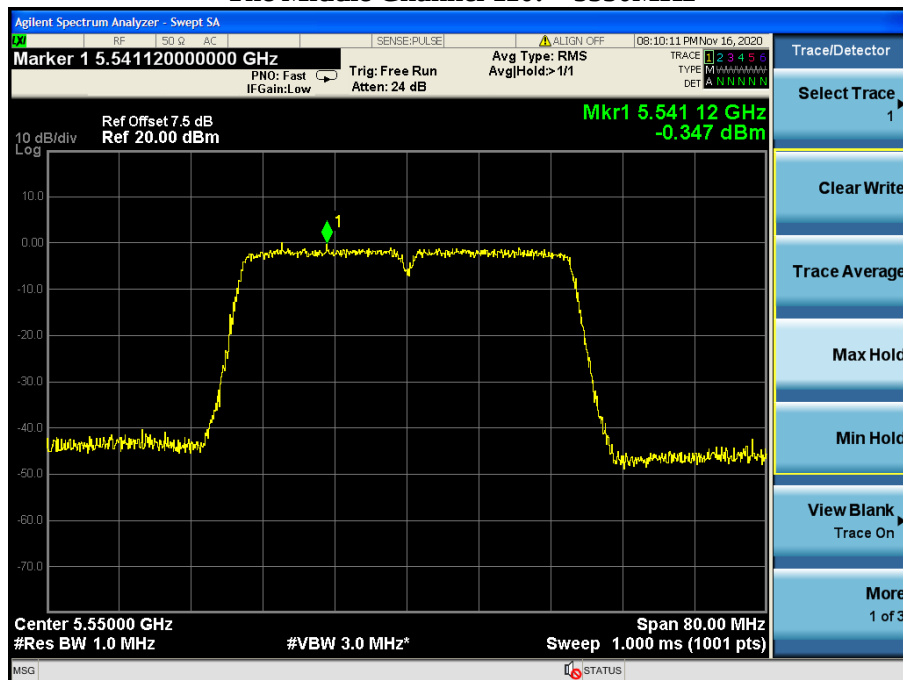
802.11ac (5.47GHz-5.725GHz)
The Highest Channel 140: 5700MHz



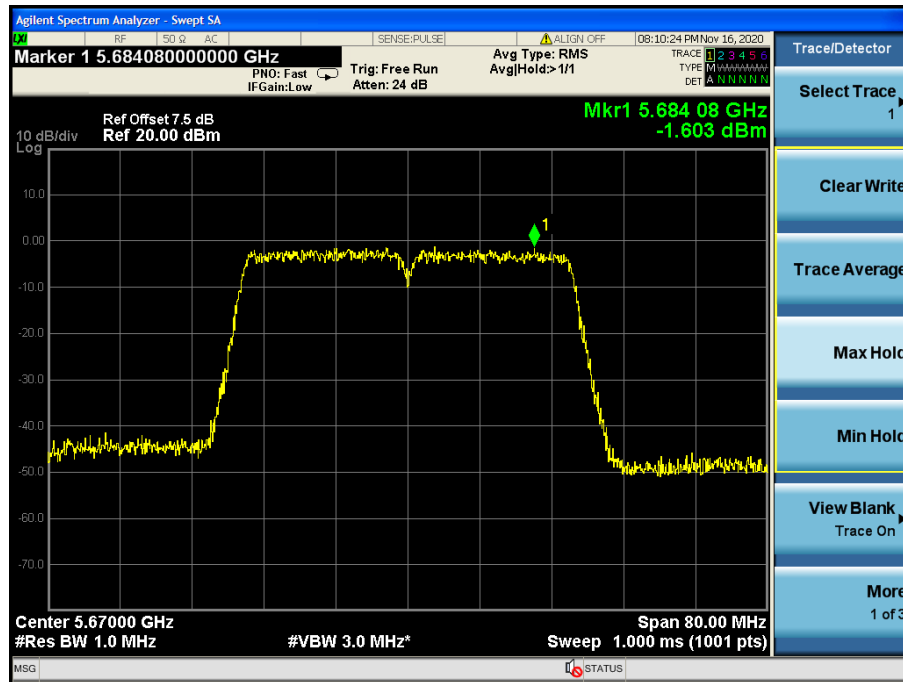
802.11n(40M) (5.47GHz-5.725GHz) The Lowest Channel 102: 5510MHz



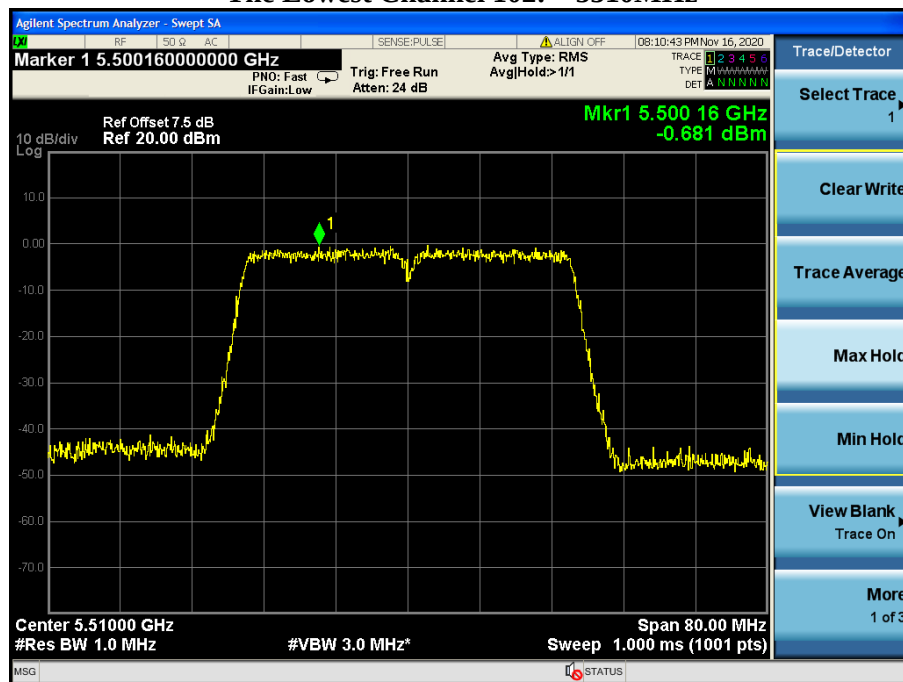
802.11n(40M) (5.47GHz-5.725GHz) The Middle Channel 110: 5550MHz



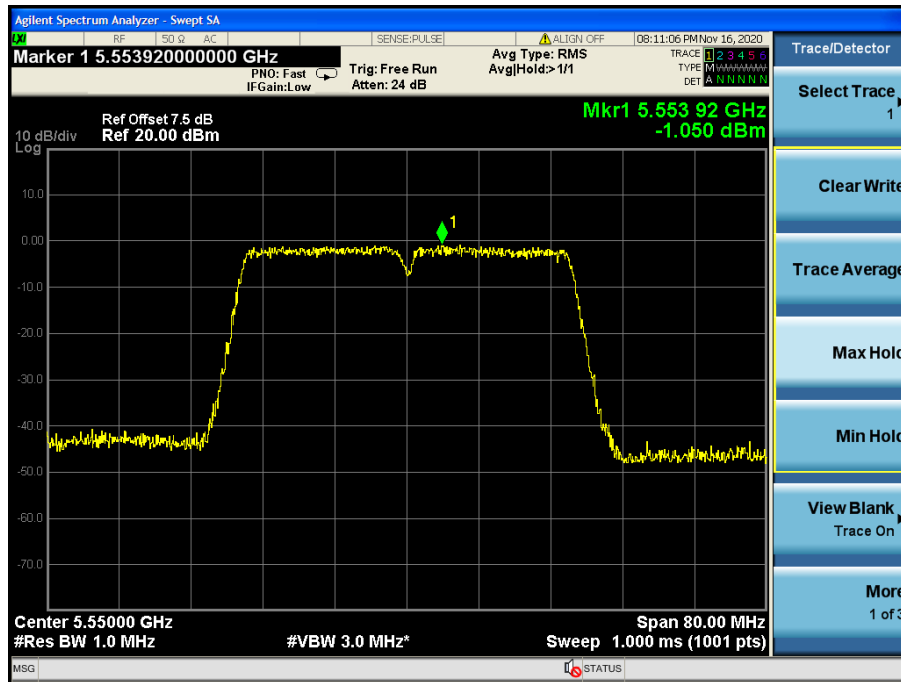
802.11n(40M) (5.47GHz-5.725GHz)
The Highest Channel 134: 5670MHz



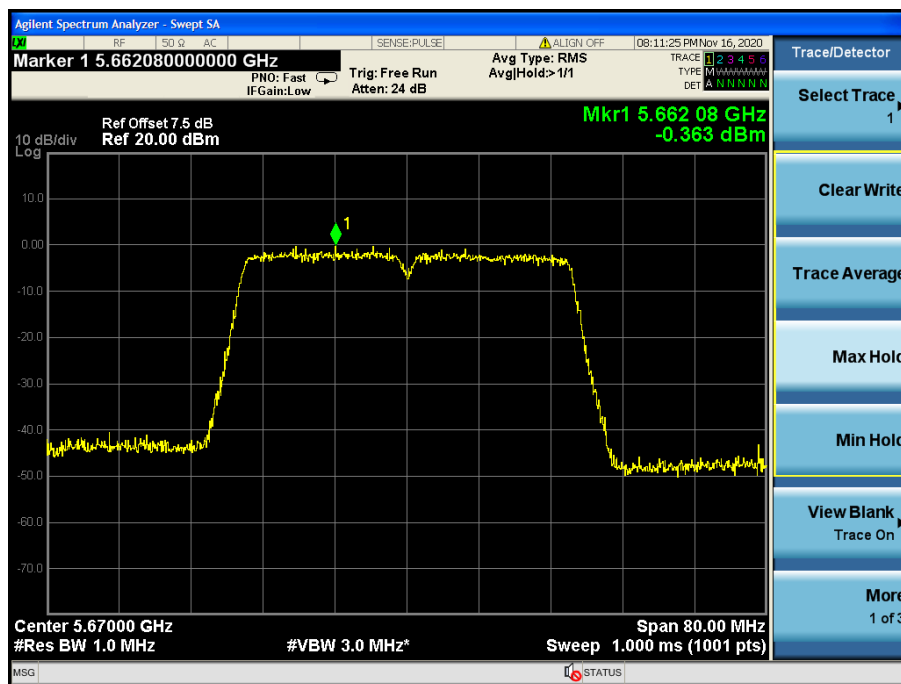
802.11n(40M) (5.47GHz-5.725GHz)
The Lowest Channel 102: 5510MHz



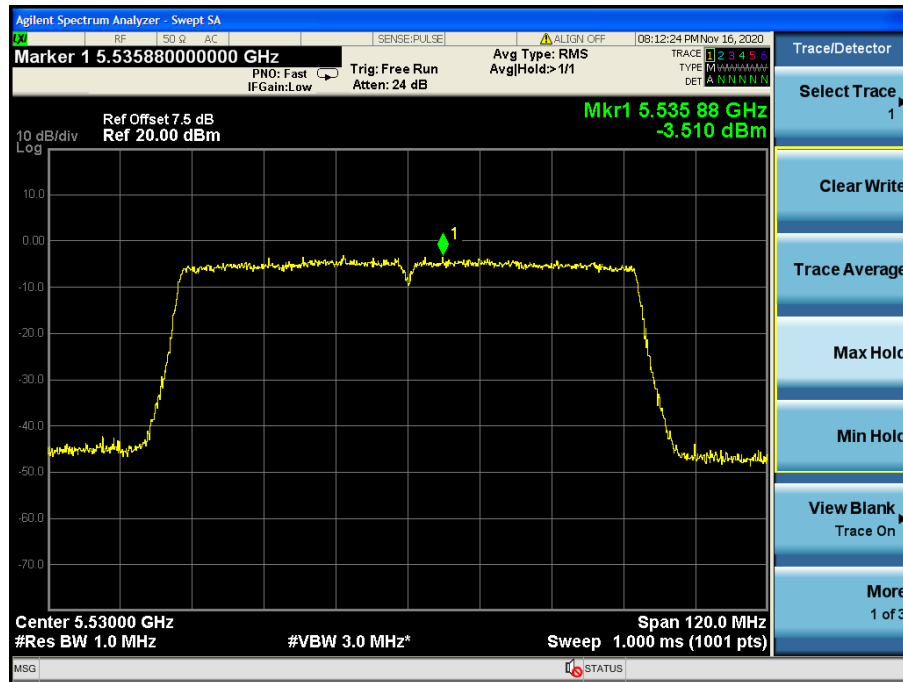
802.11ac(40M) (5.47GHz-5.725GHz)
The Middle Channel 110: 5550MHz



802.11ac(40M) (5.47GHz-5.725GHz)
The Highest Channel 134: 5670MHz



802.11ac(80M) (5.47GHz-5.725GHz)
The Lowest Channel 106: 5530MHz



6 MAXIMUM PEAK OUTPUT POWER

6.1 APPLIED PROCEDURES / LIMIT

For UNII Device in the 5.15-5.25 GHz, 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm +10 log (26dB BW).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Frequency Band	Limit
5.15 – 5.25 GHz	24dBm
5.25-5.35 GHz	24dBm
5.47 – 5.725 GHz	24dBm

6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 TEST RESULTS

EUT：	好啦機器人 HolaBot	Model Name：	HL100
Temperature：	22 ℃	Relative Humidity：	60%
Pressure：	1010 hPa	Test Voltage：	DC25.55V from battery
Test Mode：	802.11a/n20/ac20/n40/ac40/ac80		
Test Date：	2020-11-16		
Note: All the data rates have be tested and the worst-case as the table below.			

Test Mode	Channel	Channel Frequency (MHz)	Output Power 1 (dBm)	Output Power 2 (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11a (5.15GHz-5.25GHz) Data rate 6Mbps	CH36	5180	16.72	15.89	/	24	Pass
	CH40	5200	15.85	14.66	/	24	Pass
	CH48	5240	15.66	14.79	/	24	Pass
802.11n(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	CH36	5180	16.24	15.71	18.99	23.49	Pass
	CH40	5200	15.42	14.62	18.05	21.06	Pass
	CH48	5240	15.36	14.53	17.98	21.06	Pass
802.11ac(20M) (5.15GHz-5.25GHz) Data rate 13Mbps	CH36	5180	15.47	14.45	18.00	21.06	Pass
	CH40	5200	15.29	14.23	17.80	21.06	Pass
	CH48	5240	15.01	14.28	17.67	21.06	Pass
802.11n(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	CH38	5190	15.04	14.05	17.58	21.06	Pass
	CH46	5230	14.32	13.91	17.13	21.06	Pass
802.11ac(40M) (5.15GHz-5.25GHz) Data rate 27Mbps	CH38	5190	14.76	13.88	17.35	21.06	Pass
	CH46	5230	14.55	13.07	16.88	21.06	Pass
802.11ac(80M) (5.15GHz-5.25GHz) Data rate 58.6Mbps	CH42	5210	14.63	13.84	17.26	21.06	Pass

EUT：	好啦機器人 HolaBot	Model Name：	HL100
Temperature：	22 ℃	Relative Humidity：	60%
Pressure：	1010 hPa	Test Voltage：	DC25.55V from battery
Test Mode：	802.11a/n20/ac20/n40/ac40/ac80		
Test Date：	2020-11-16		
Note: All the data rates have be tested and the worst-case as the table below.			

Test Mode	Channel	Channel Frequency (MHz)	Output Power 1 (dBm)	Output Power 2 (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11a (5.25GHz-5.35GHz) Data rate 6Mbps	CH52	5260	15.33	14.89	/	24	Pass
	CH60	5300	15.42	14.36	/	24	Pass
	CH64	5320	15.57	14.52	/	24	Pass
802.11n(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	CH52	5260	14.85	13.67	17.31	21.06	Pass
	CH60	5300	15.11	13.95	17.58	21.06	Pass
	CH64	5320	14.70	13.66	17.22	21.06	Pass
802.11ac(20M) (5.25GHz-5.35GHz) Data rate 13Mbps	CH52	5260	14.86	13.54	17.26	21.06	Pass
	CH60	5300	14.93	13.17	17.15	21.06	Pass
	CH64	5320	14.66	13.29	17.04	21.06	Pass
802.11n(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	CH54	5270	14.27	13.00	16.69	21.06	Pass
	CH62	5310	13.85	12.89	16.41	21.06	Pass
802.11ac(40M) (5.25GHz-5.35GHz) Data rate 27Mbps	CH54	5270	14.13	13.16	16.68	21.06	Pass
	CH62	5310	13.92	13.05	16.52	21.06	Pass
802.11ac(80M) (5.25GHz-5.35GHz) Data rate 58.6Mbps	CH58	5290	13.62	12.98	16.32	21.06	Pass

EUT：	好啦機器人 HolaBot	Model Name：	HL100
Temperature：	22 ℃	Relative Humidity：	60%
Pressure：	1010 hPa	Test Voltage：	DC25.55V from battery
Test Mode：	802.11a/n20/ac20/n40/ac40/ac80		
Test Date：	2020-11-16		
Note: All the data rates have be tested and the worst-case as the table below.			

Test Mode	Channel	Channel Frequency (MHz)	Output Power 1 (dBm)	Output Power 2 (dBm)	Total Power (dBm)	Limit (dBm)	Result
802.11a (5.47GHz-5.725GHz) Data rate 6Mbps	CH100	5500	14.31	14.05	/	24	Pass
	CH116	5580	14.88	14.52	/	24	Pass
	CH140	5700	14.26	13.92	/	24	Pass
802.11n(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	CH100	5500	13.55	13.27	16.42	21.06	Pass
	CH116	5580	13.11	12.61	15.88	21.06	Pass
	CH140	5700	13.18	12.86	16.03	21.06	Pass
802.11ac(20M) (5.47GHz-5.725GHz) Data rate 13Mbps	CH100	5500	12.74	12.46	15.61	21.06	Pass
	CH116	5580	12.64	12.36	15.51	21.06	Pass
	CH140	5700	12.84	12.41	15.64	21.06	Pass
802.11n(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	CH102	5510	12.61	12.34	15.49	21.06	Pass
	CH110	5550	12.44	12.08	15.27	21.06	Pass
	CH134	5670	12.07	11.81	14.95	21.06	Pass
802.11ac(40M) (5.47GHz-5.725GHz) Data rate 27Mbps	CH102	5510	12.33	11.93	15.14	21.06	Pass
	CH110	5550	12.17	11.76	14.98	21.06	Pass
	CH134	5670	12.05	11.58	14.83	21.06	Pass
802.11ac(80M) (5.47GHz-5.725GHz) Data rate 58.6Mbps	CH106	5530	11.88	11.34	14.63	21.06	Pass

7 BAND EDGE

7.1 APPLIED PROCEDURES / LIMIT

15.407 (b) In any 1 MHz bandwidth outside the frequency band in which the spread spectrum, the radio frequency power that is produced by the intentional radiator shall be below -27 dBm.

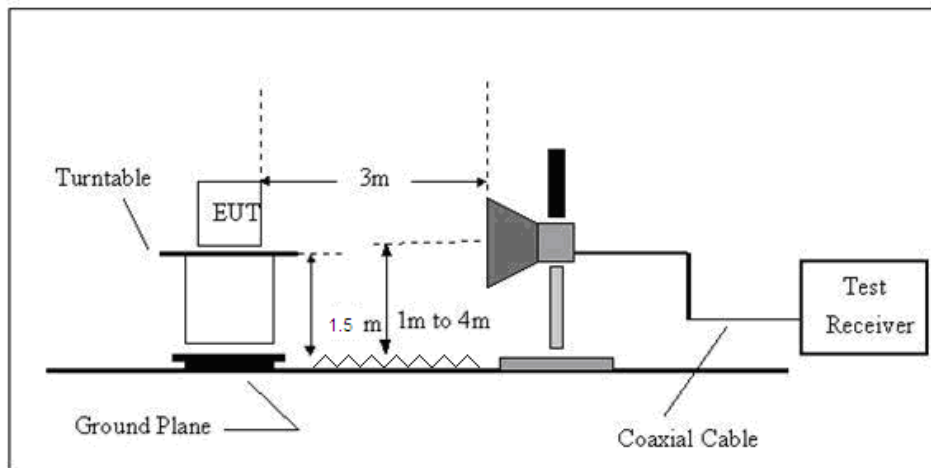
7.2 TEST PROCEDURE

- The Transmitter output of EUT was connected to the spectrum analyzer.
Equipment mode: Spectrum analyzer
Detector function: Peak mode
SPAN: 100MHz
RBW: 1 MHz
VBW: 1 MHz
Sweep time= Auto.
- Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
- Find the next peak frequency outside the operation frequency band.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



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

Final Test Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier Factor

Remark:

For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$$

For example, if EIRP = -27dBm

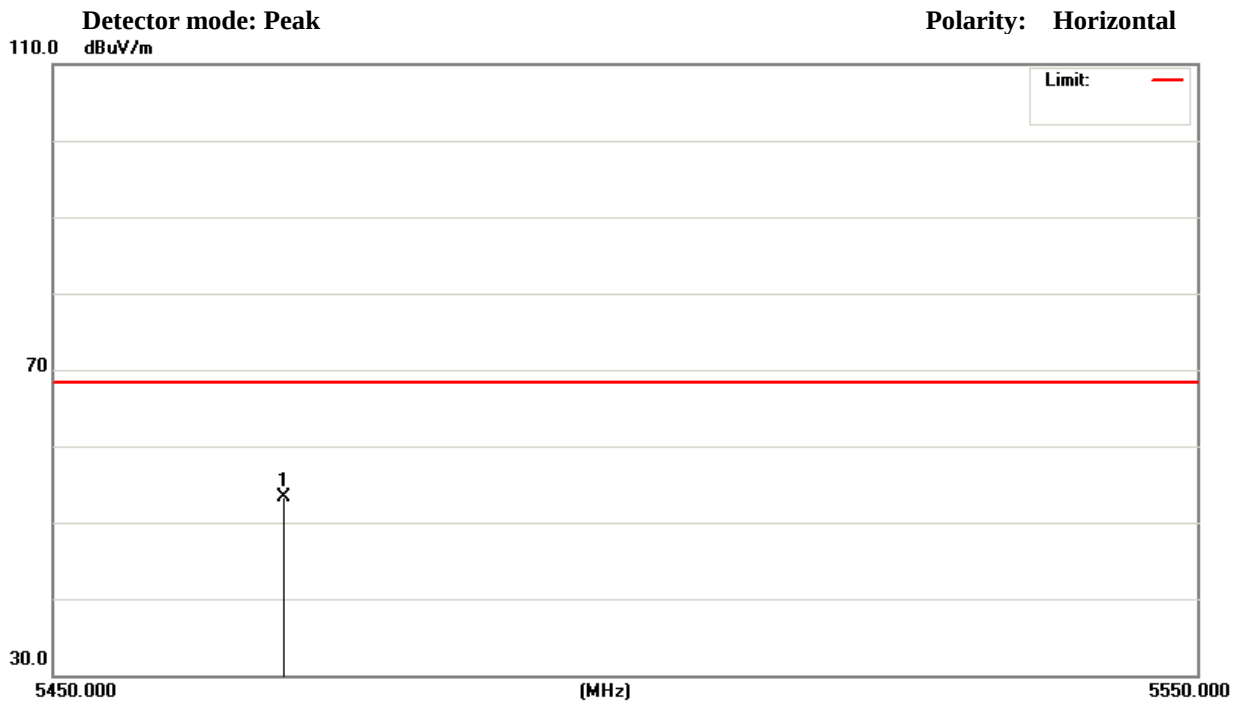
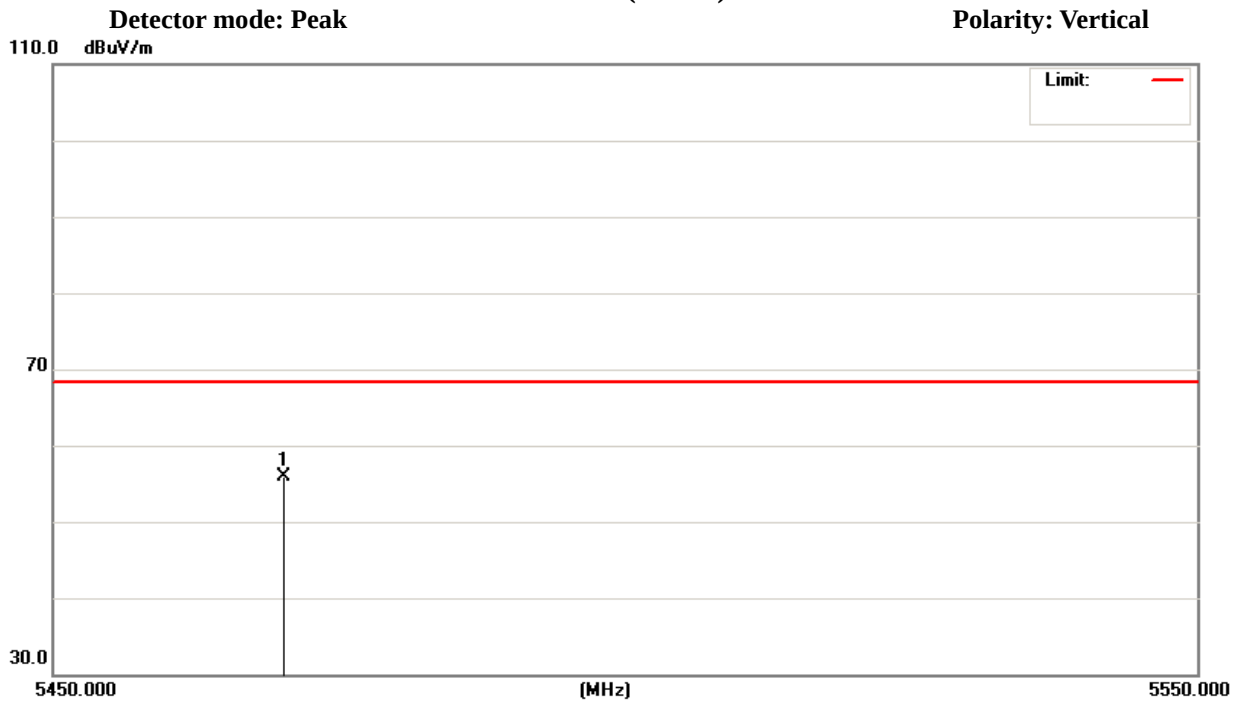
$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

7.5 TEST RESULTS

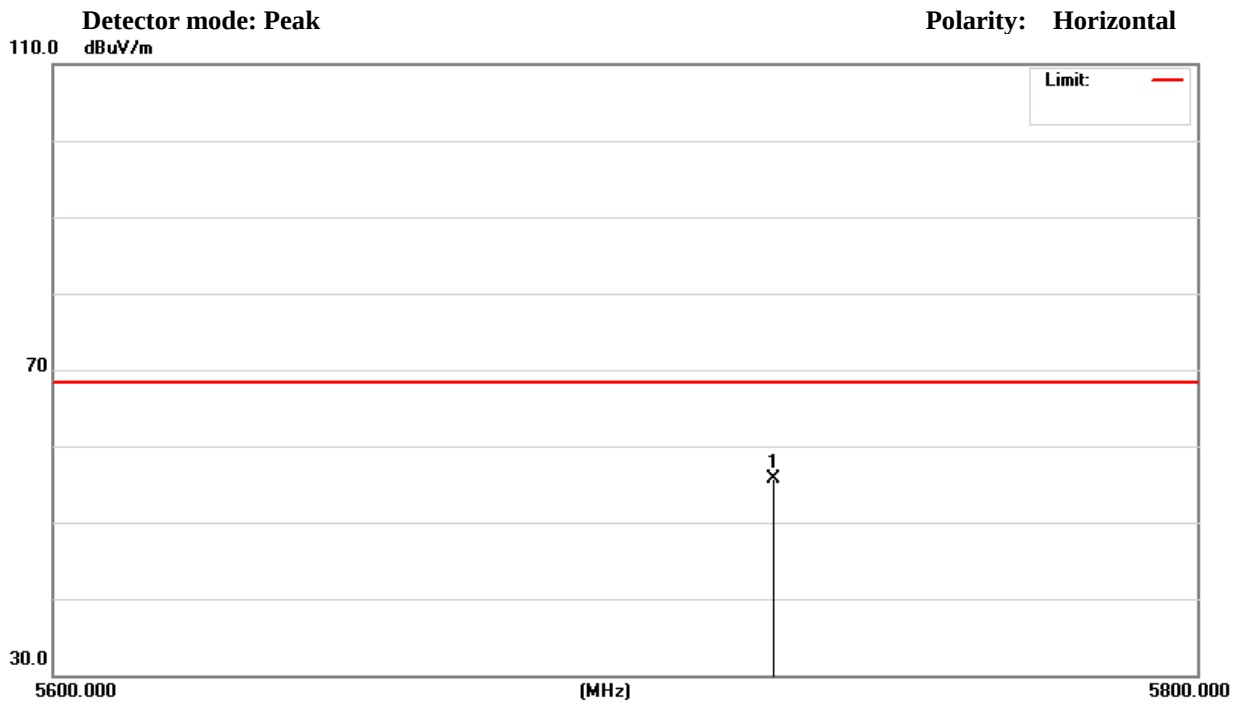
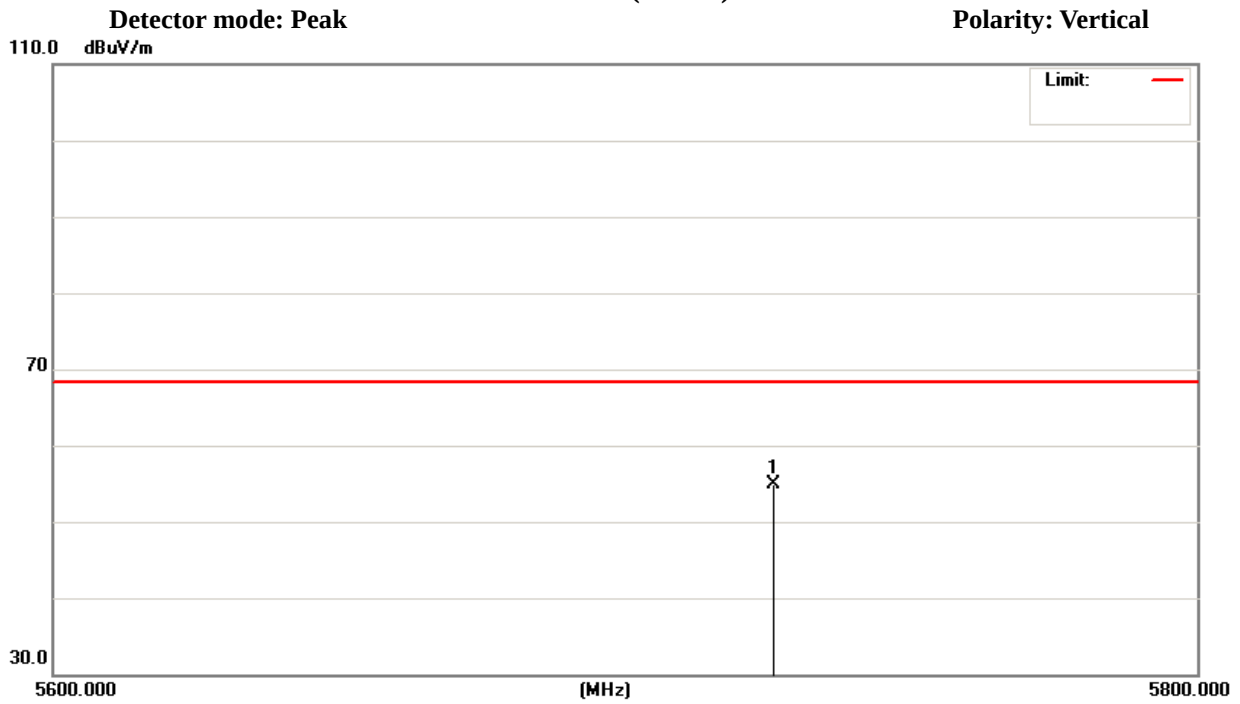
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11a		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	53.52	3.96	57.48	68.20	CH 100
5470.000	H	50.01	3.96	53.97	68.20	CH 100
5725.000	V	52.12	3.95	56.07	68.20	CH 140
5725.000	H	52.54	3.95	56.49	68.20	CH 140

802.11a (5.47GHz-5.725GHz) CH 100(Lower)



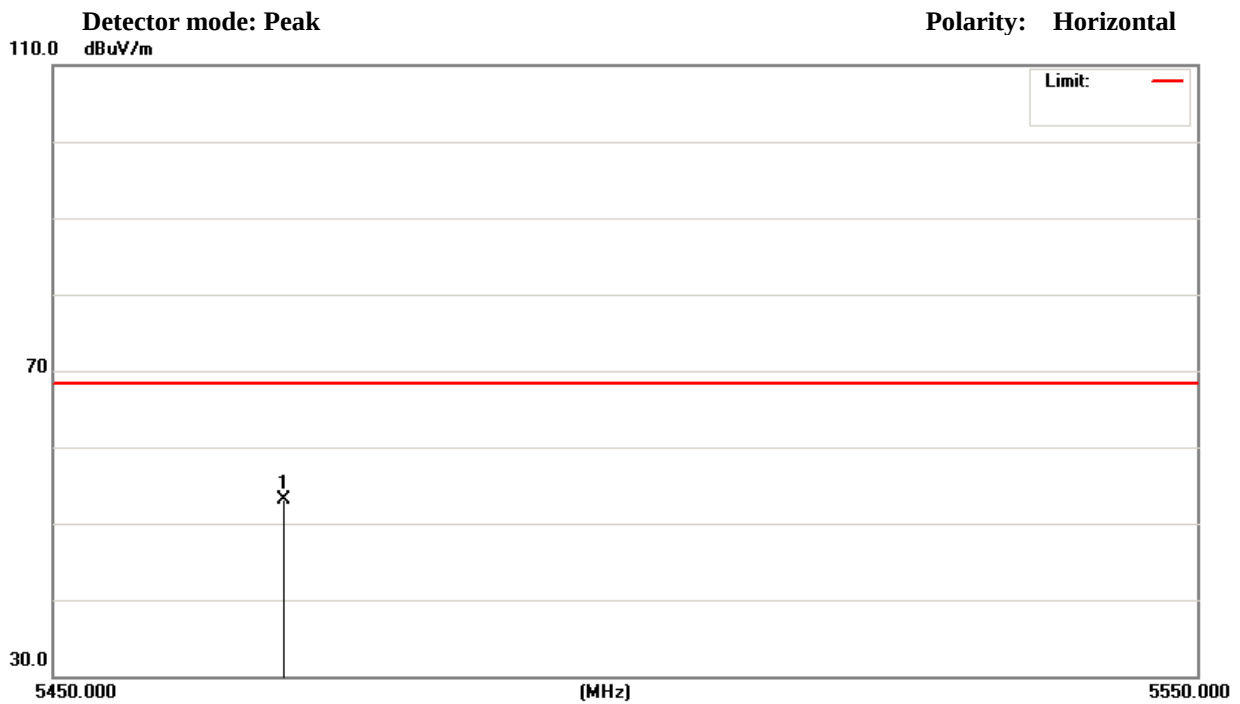
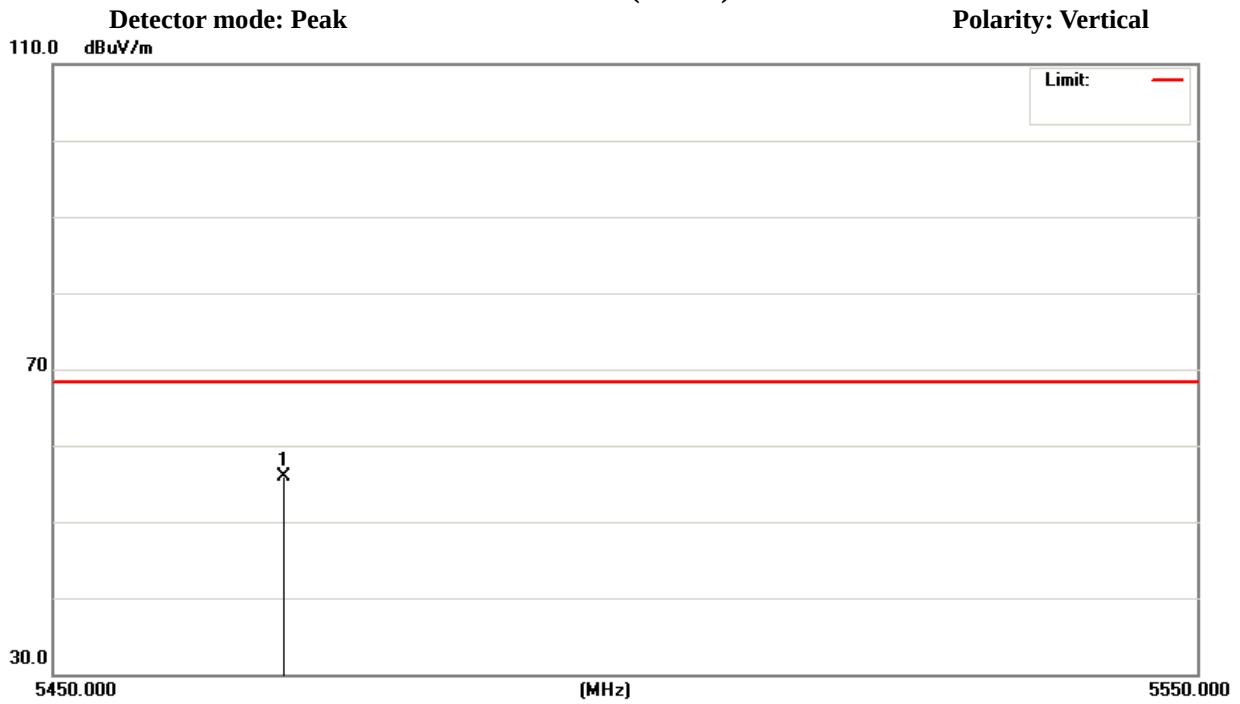
802.11a (5.47GHz-5.725GHz)
CH 140 (Lower)



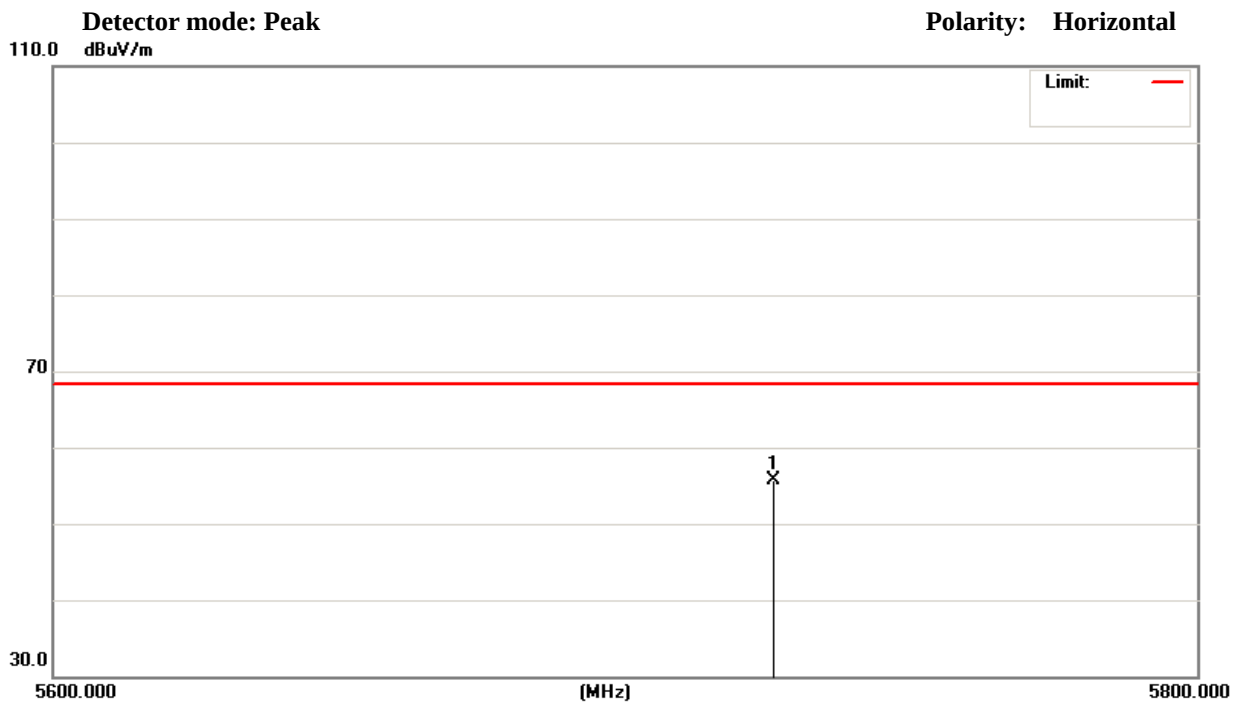
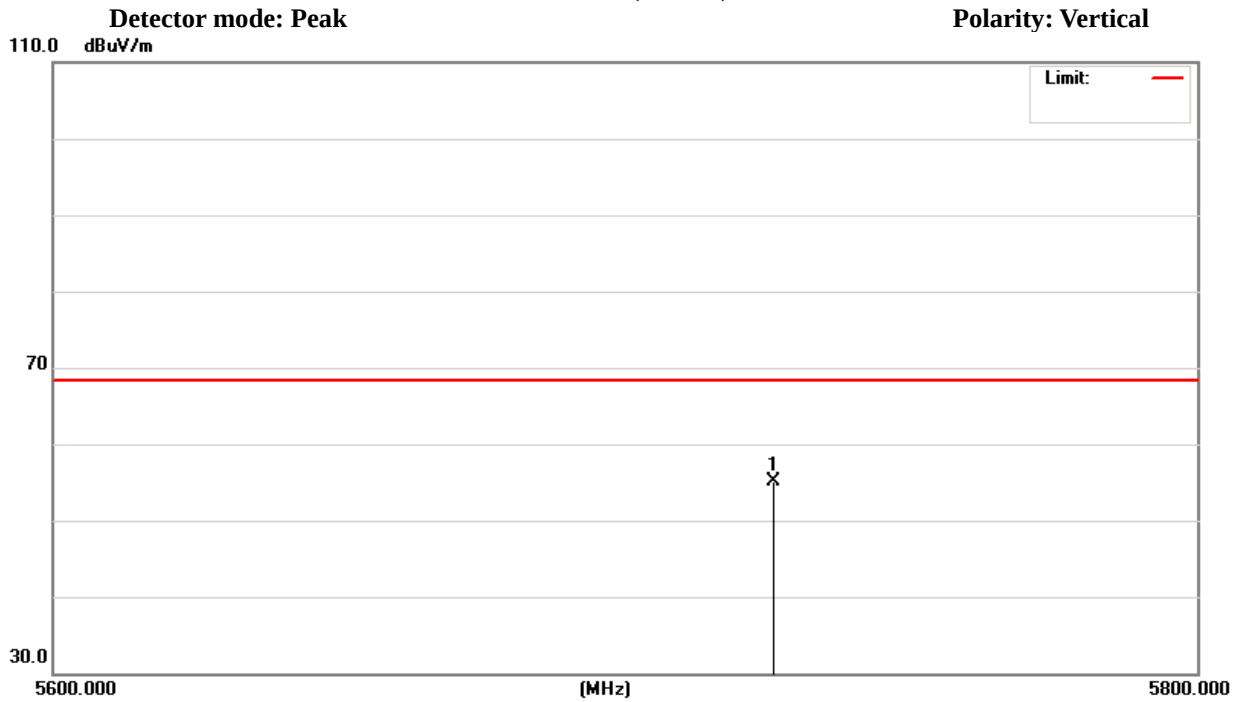
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11n20(5G)		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	52.57	3.96	56.53	68.20	CH 100
5470.000	H	48.88	3.96	52.84	68.20	CH 100
5725.000	V	50.84	3.95	54.79	68.20	CH 140
5725.000	H	51.62	3.95	55.57	68.20	CH 140

802.11n(20M) (5.47GHz-5.725GHz)
CH 100 (Lower)



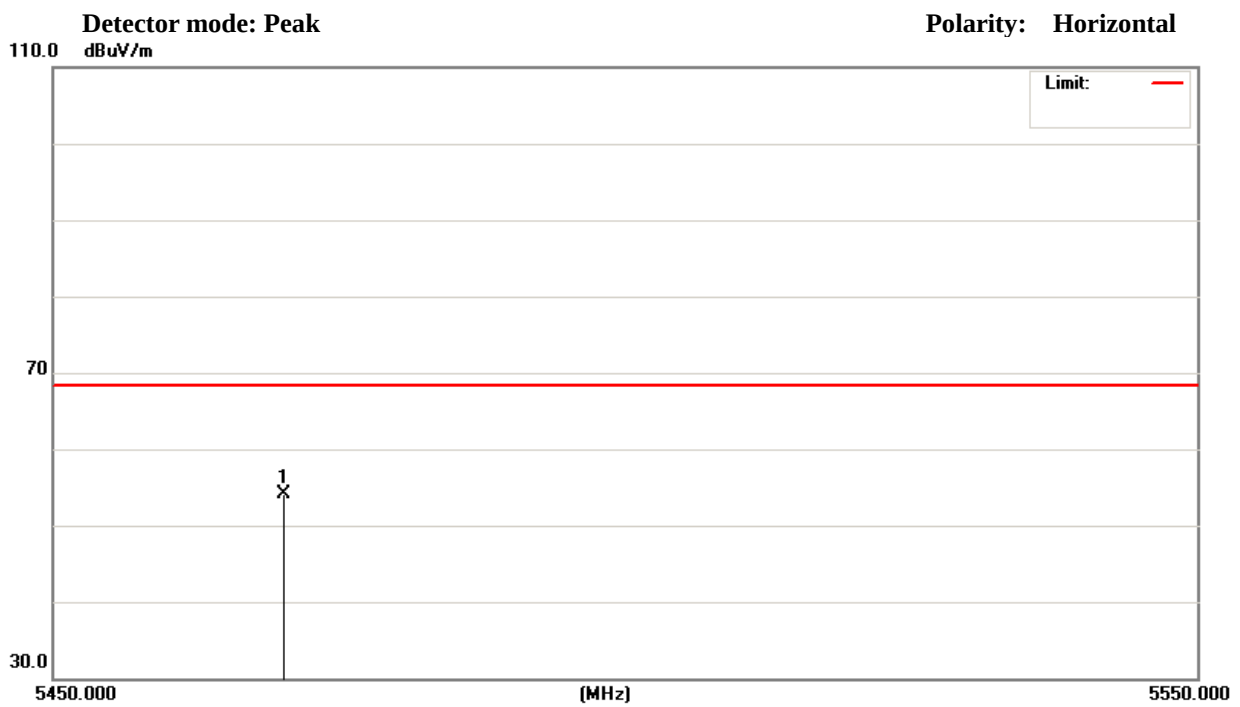
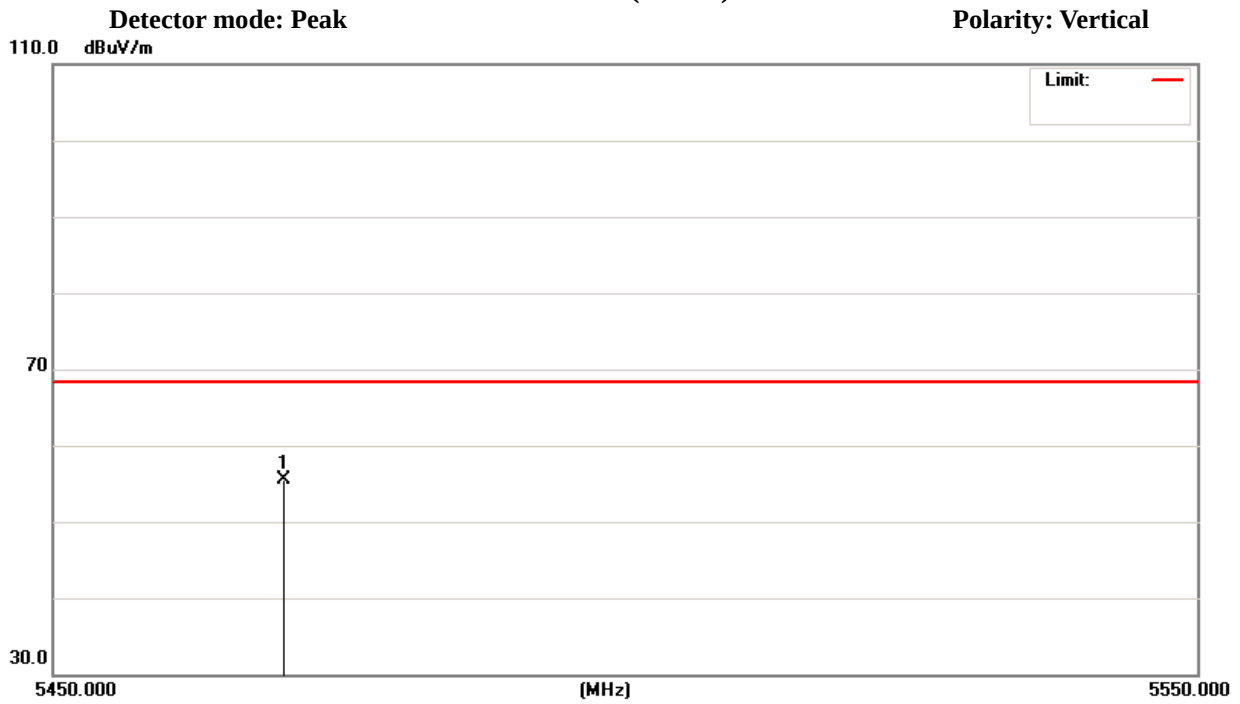
802.11n(20M) (5.47GHz-5.725GHz)
CH 140 (Lower)



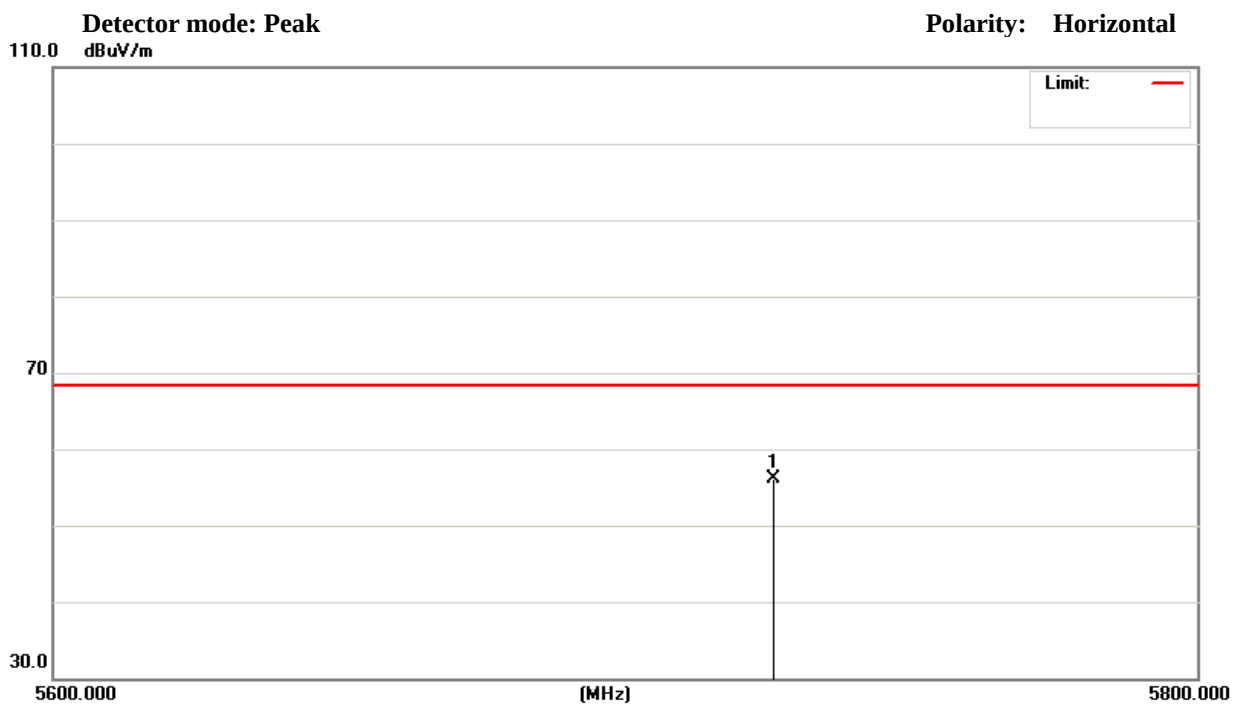
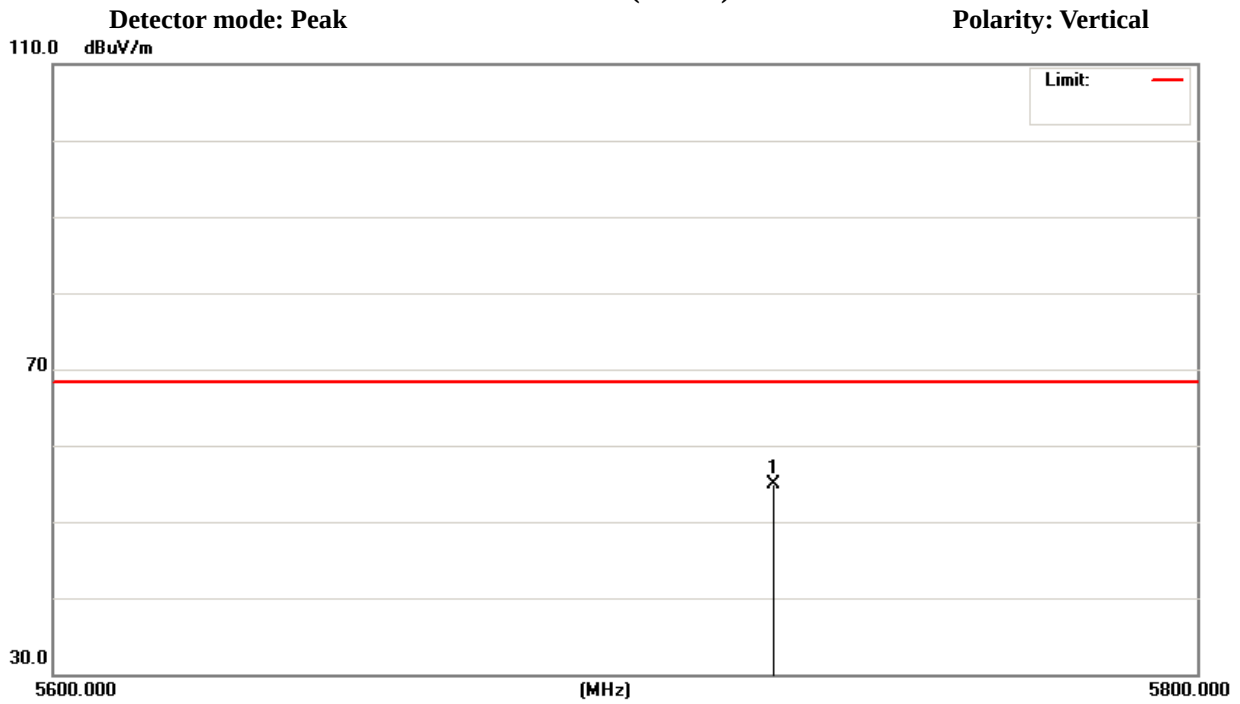
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11ac20(5G)		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	52.21	3.96	56.17	68.20	CH 100
5470.000	H	50.92	3.96	54.88	68.20	CH 100
5725.000	V	51.59	3.95	55.54	68.20	CH 140
5725.000	H	52.74	3.95	56.69	68.20	CH 140

802.11ac (5.47GHz-5.725GHz)
CH 100 (Lower)



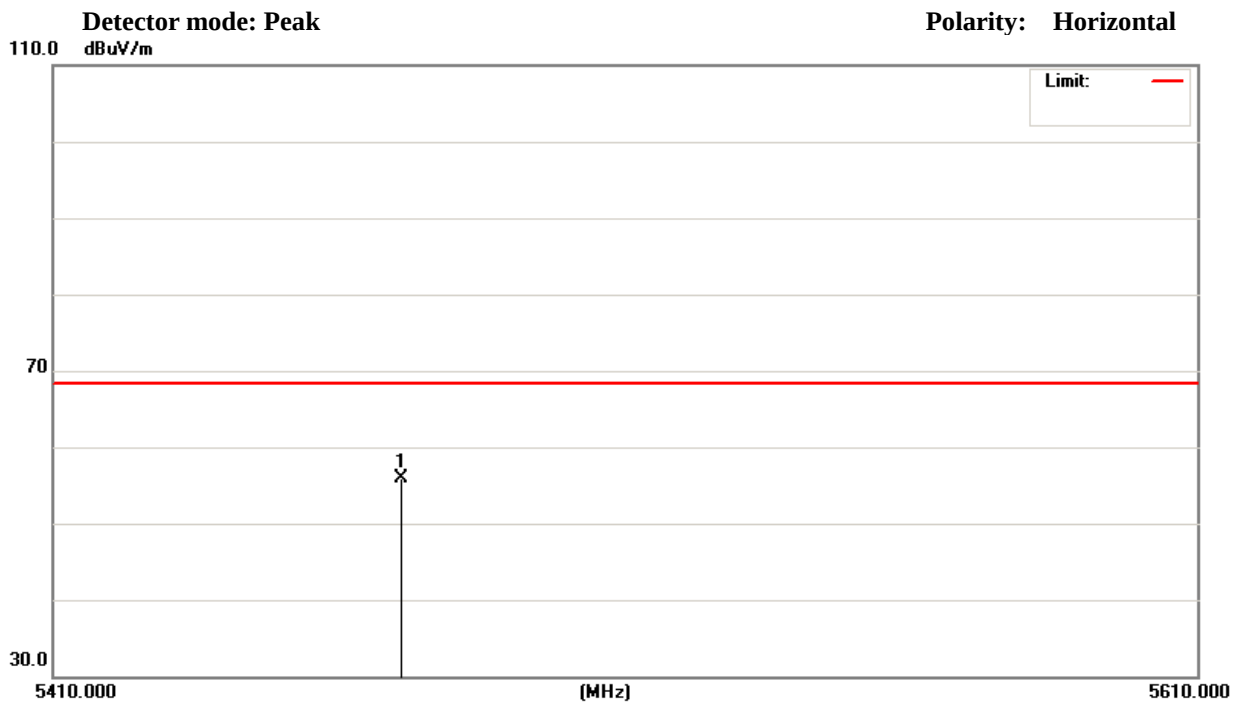
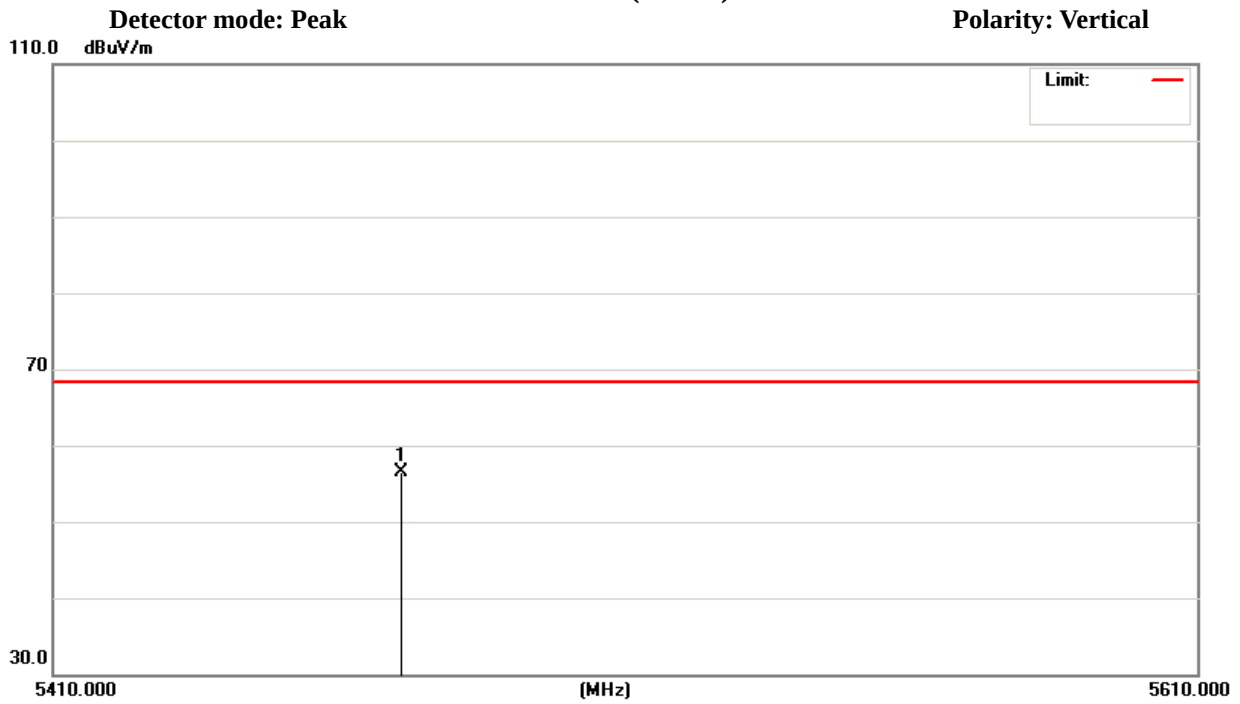
802.11ac (5.47GHz-5.725GHz)
CH 140 (Lower)



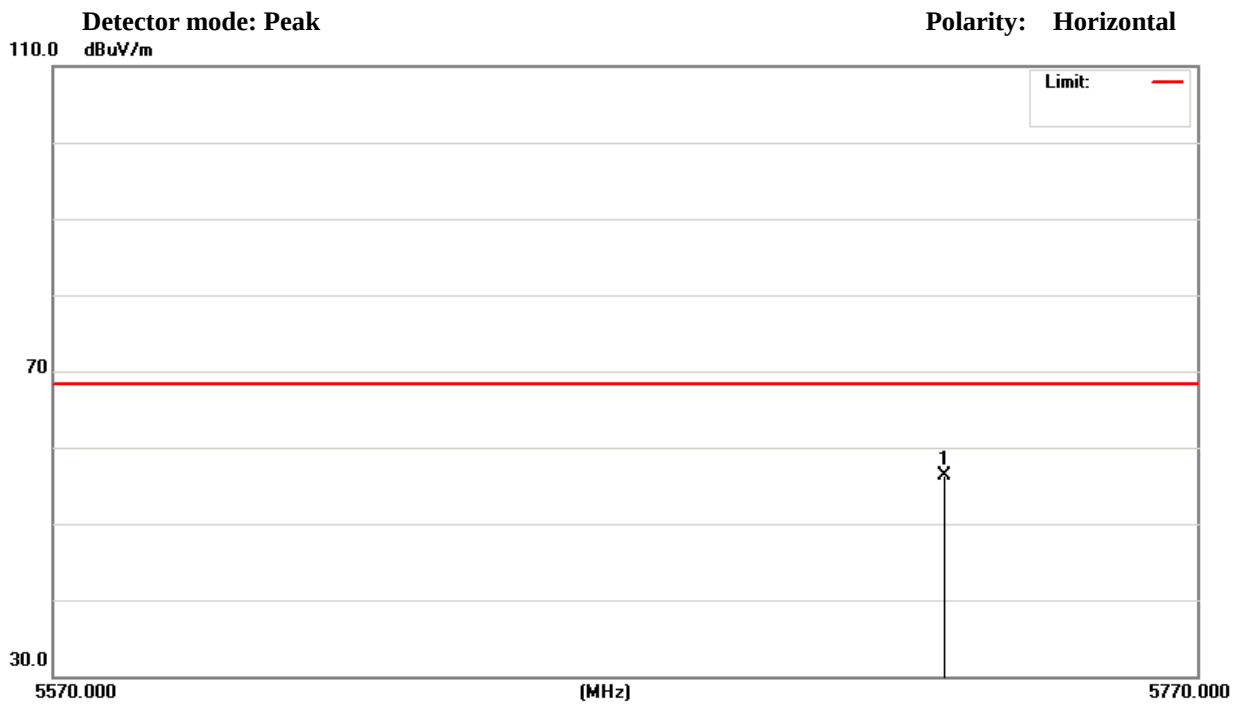
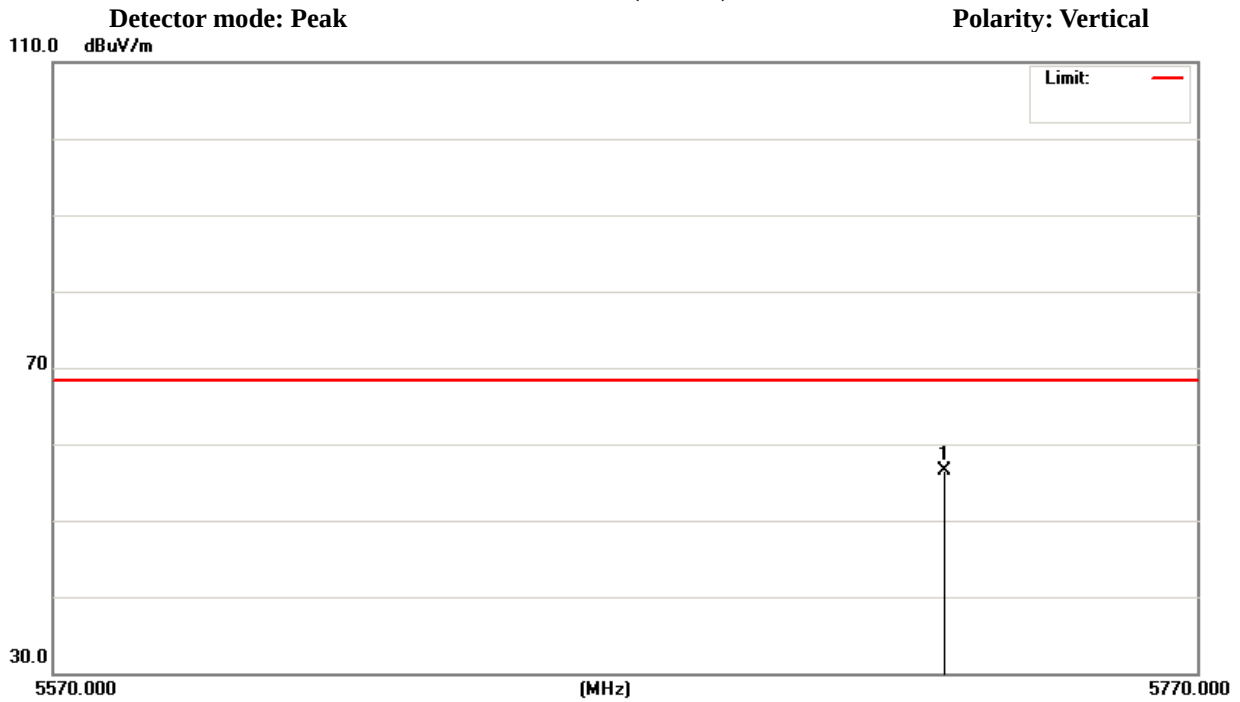
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11n40(5G)		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	53.08	3.96	57.04	68.20	CH 102
5470.000	H	52.75	3.96	56.71	68.20	CH 102
5725.000	V	52.99	3.95	56.94	68.20	CH 134
5725.000	H	52.84	3.95	56.79	68.20	CH 134

802.11n(40M) (5.47GHz-5.725GHz)
CH 102 (Lower)



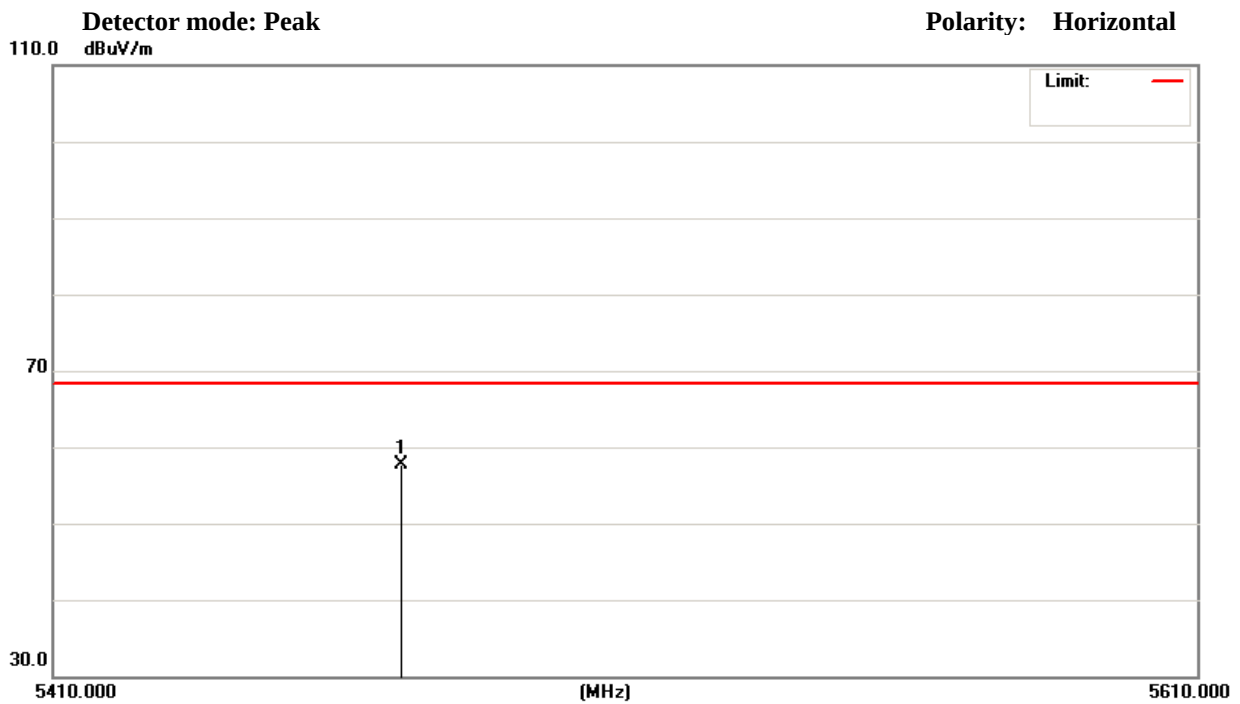
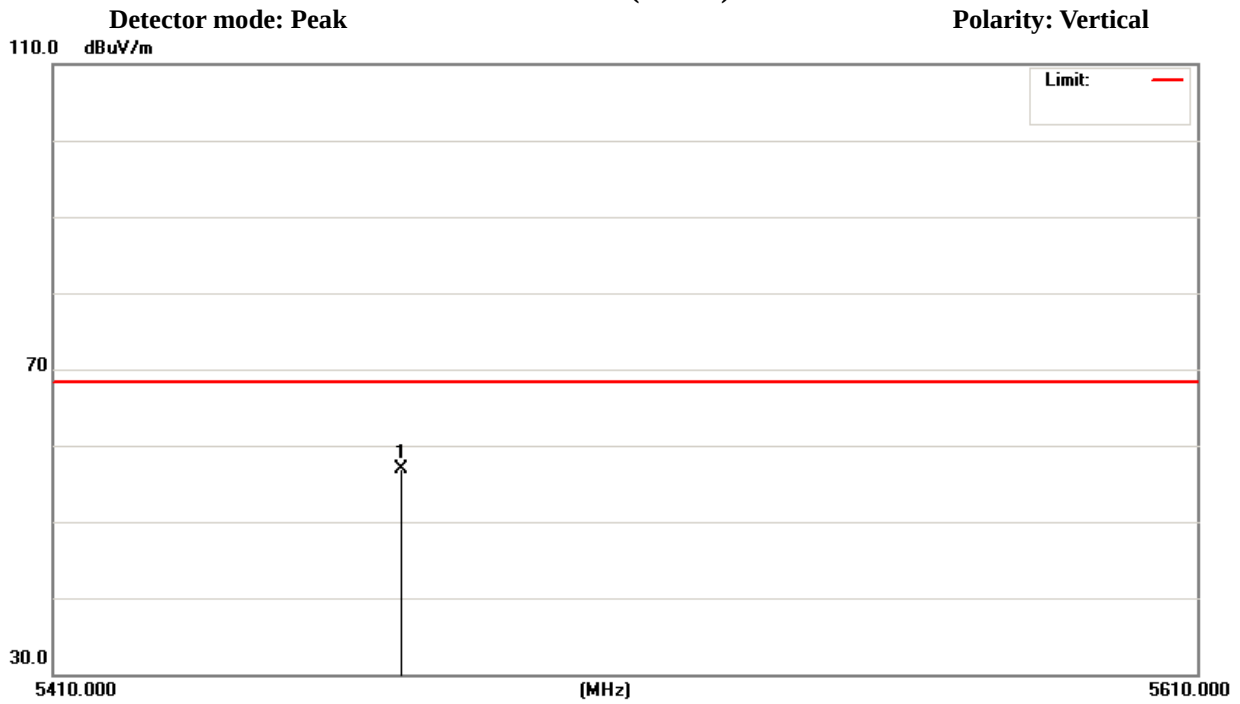
802.11n(40M) (5.47GHz-5.725GHz)
CH 134 (Lower)



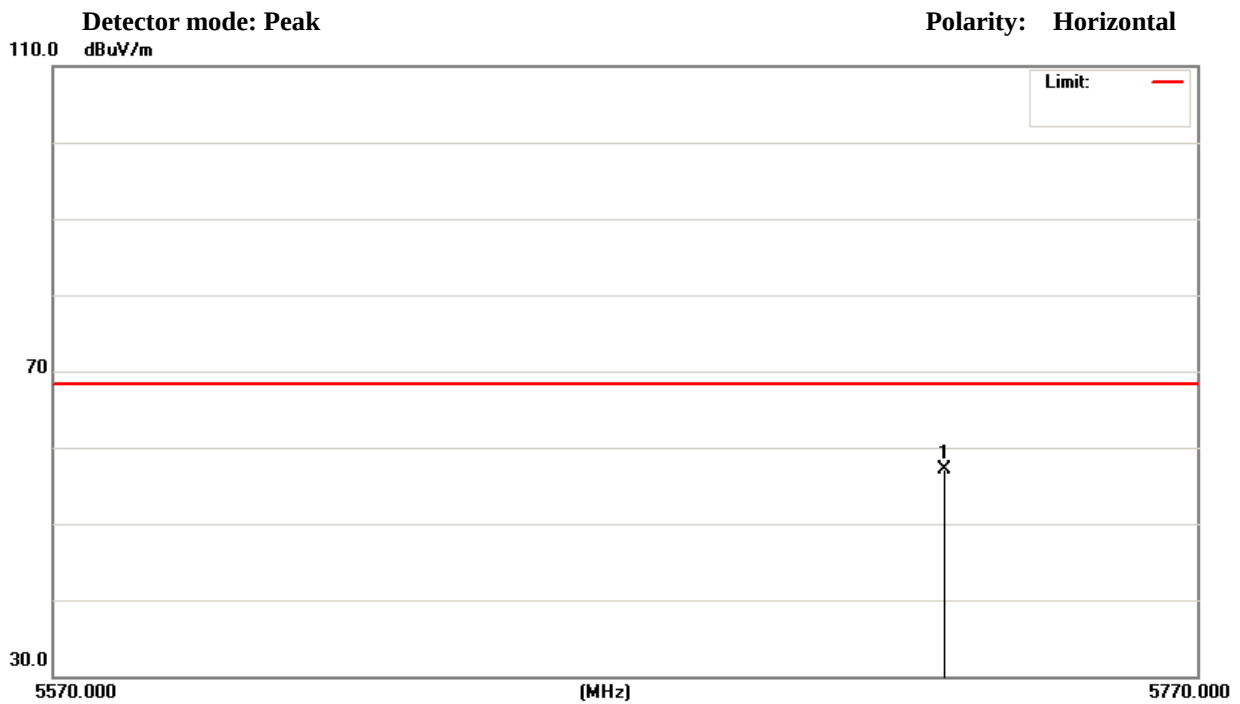
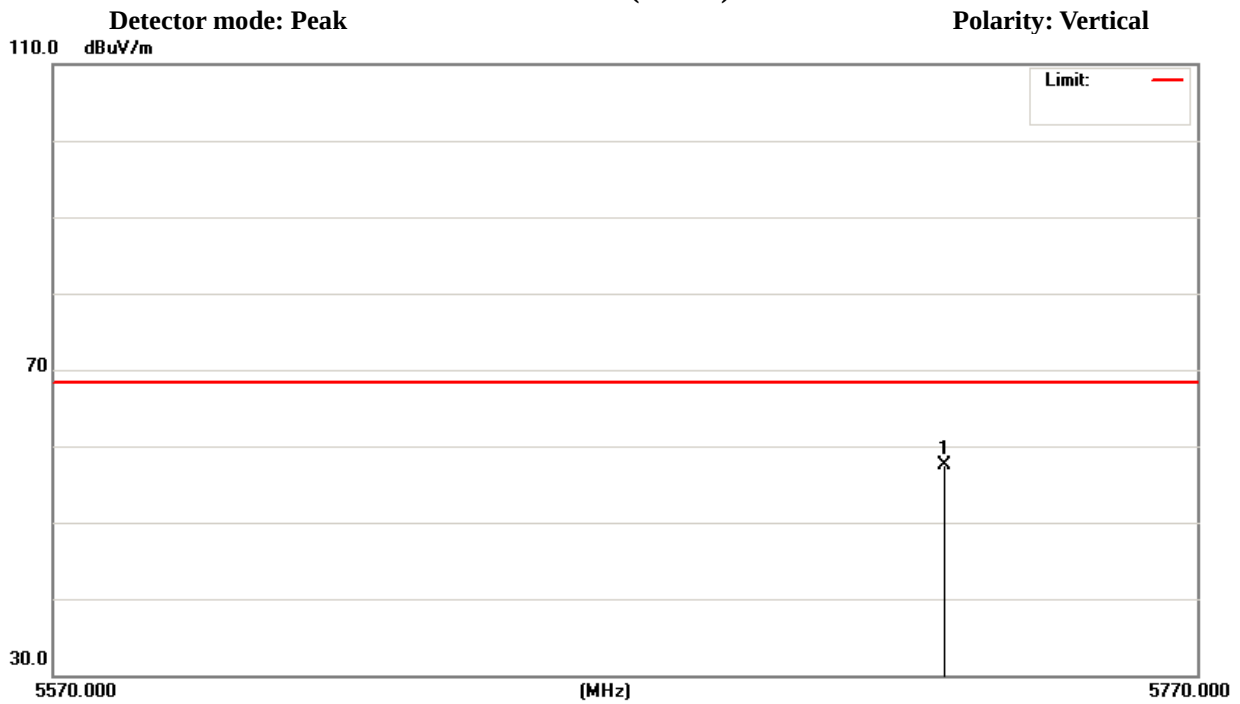
EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11ac40(5G)		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	53.62	3.96	57.58	68.20	CH 102
5470.000	H	54.23	3.96	58.19	68.20	CH 102
5725.000	V	54.56	3.95	58.51	68.20	CH 134
5725.000	H	53.66	3.95	57.61	68.20	CH 134

802.11ac(40M) (5.47GHz-5.725GHz)
CH 102 (Lower)



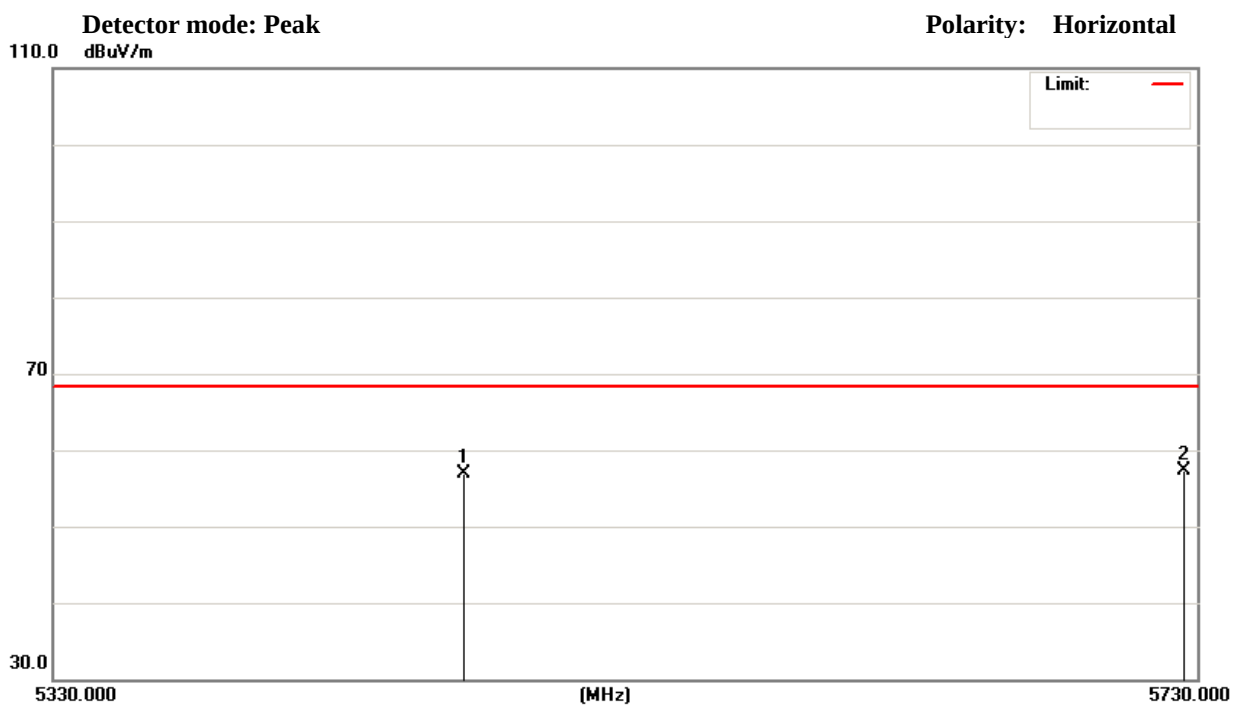
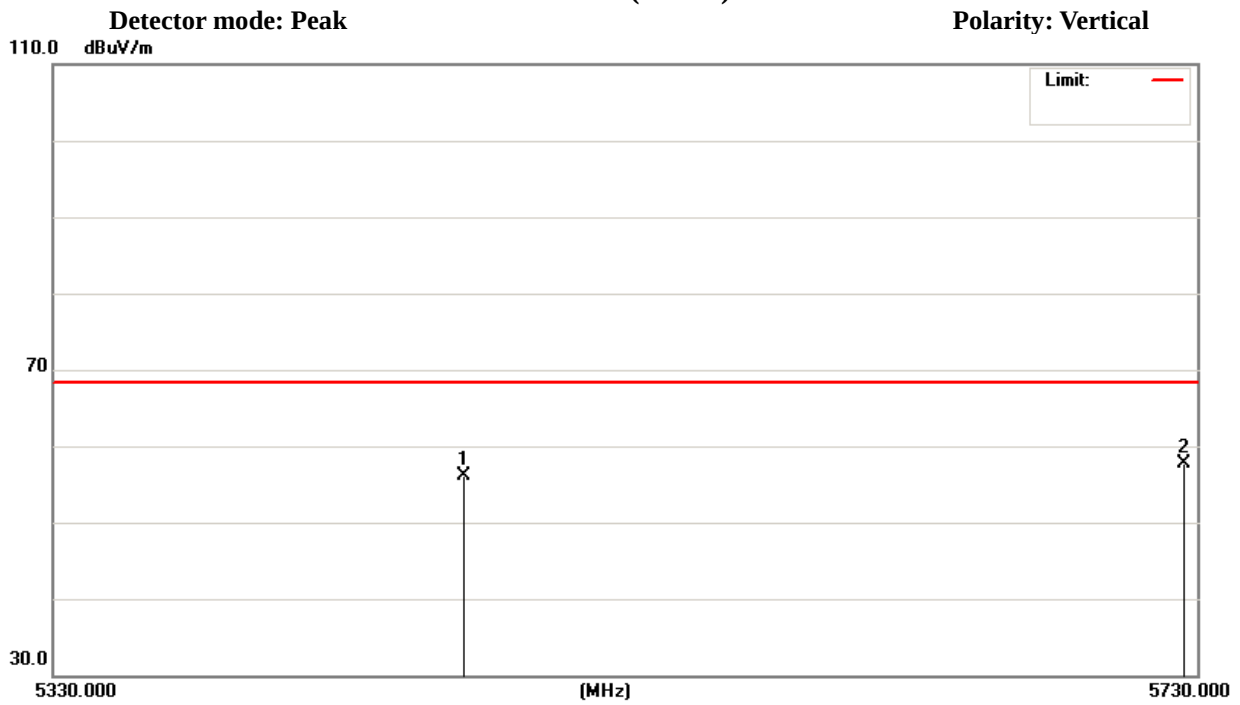
802.11ac(40M) (5.47GHz-5.725GHz)
CH 134 (Lower)



EUT :	好啦機器人 HolaBot	Model Name :	HL100
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1010 hPa	Test Voltage :	DC25.55V from battery
Test Mode :	802.11 AC80(5G)		
Test Date :	2020-11-12		
Note :	In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.		

Freq. (MHz)	Ant.Pol. H/V	Reading (dBuv)	Ant/CF (dB)	Act (dBuv/m)	Limit (dBuv/m)	Note
5470.000	V	52.55	3.96	56.51	68.20	CH 106
5725.000	V	54.03	3.95	57.98	68.20	CH 106
5470.000	H	53.37	3.96	57.33	68.20	CH 106
5725.000	H	54.01	3.95	57.96	68.20	CH 106

802.11ac(80M) (5.31GHz-5.775GHz)
CH 106 (Lower)

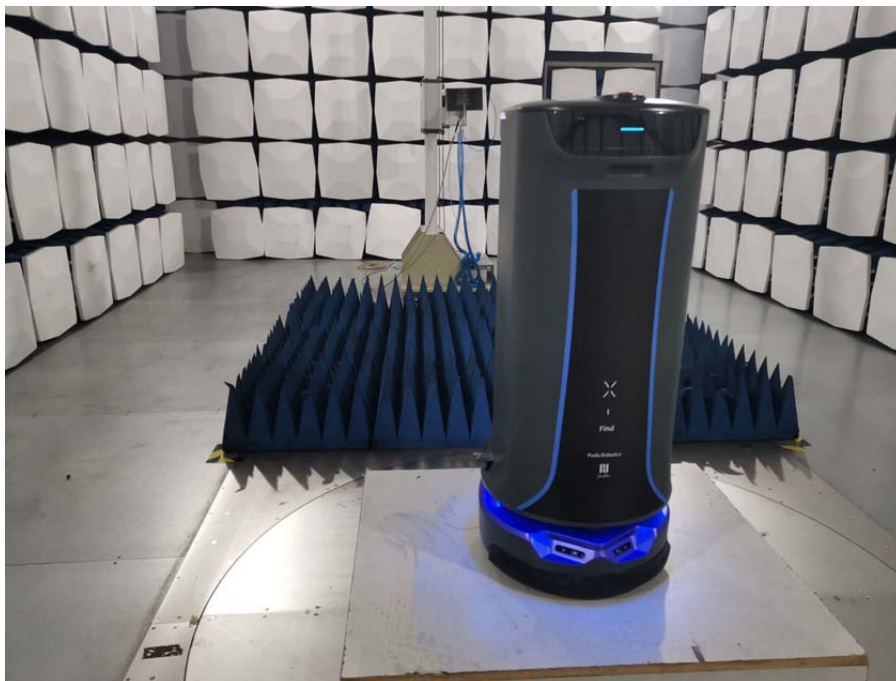


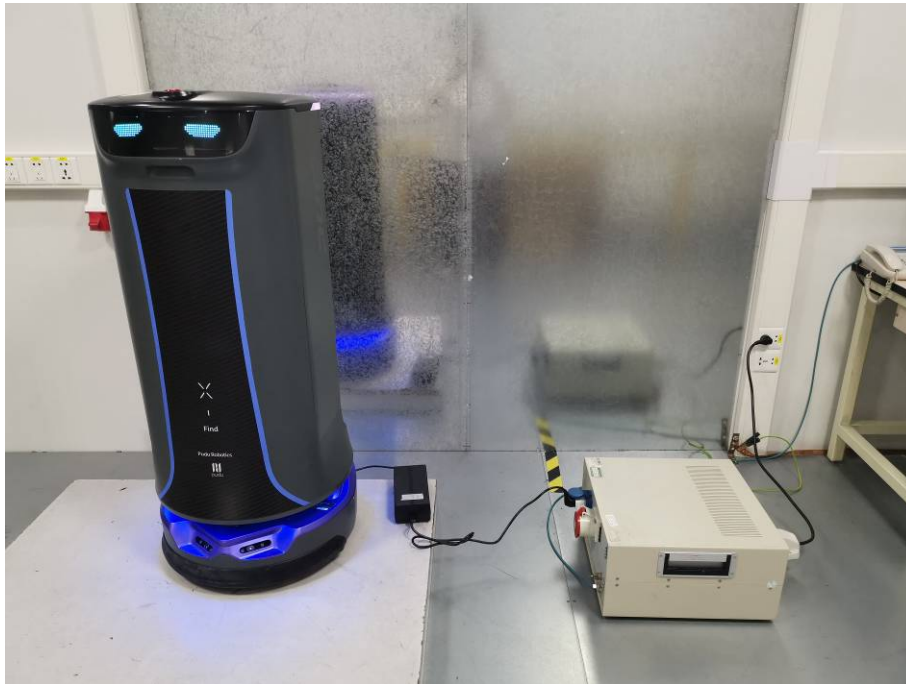
9. EUT TEST PHOTO

**Radiated Measurement Photos
30MHz-1GHz**



**Radiated Measurement Photos
Above 1GHz**



Conducted Measurement Photos**10. APPENDIX-Photographs of EUT Constructional Details**

Please refer to report APPENDIX.

**** End of Report ****