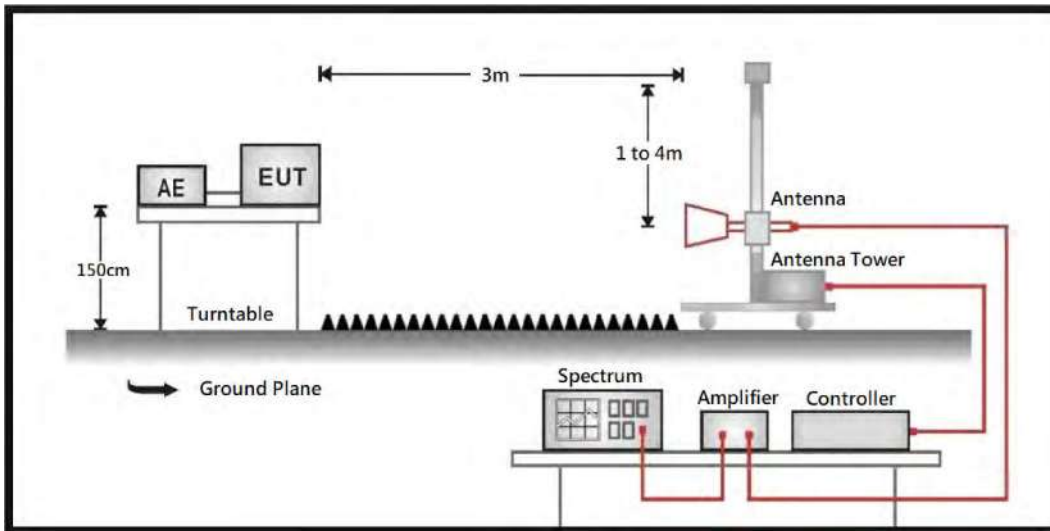


8. Radiated Emission Band Edge

8.1. Test Setup



8.2. Test Limit

General Radiated Emission Test Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 30 dB below the level of the fundamental or to the general radiated emission limit in paragraph 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

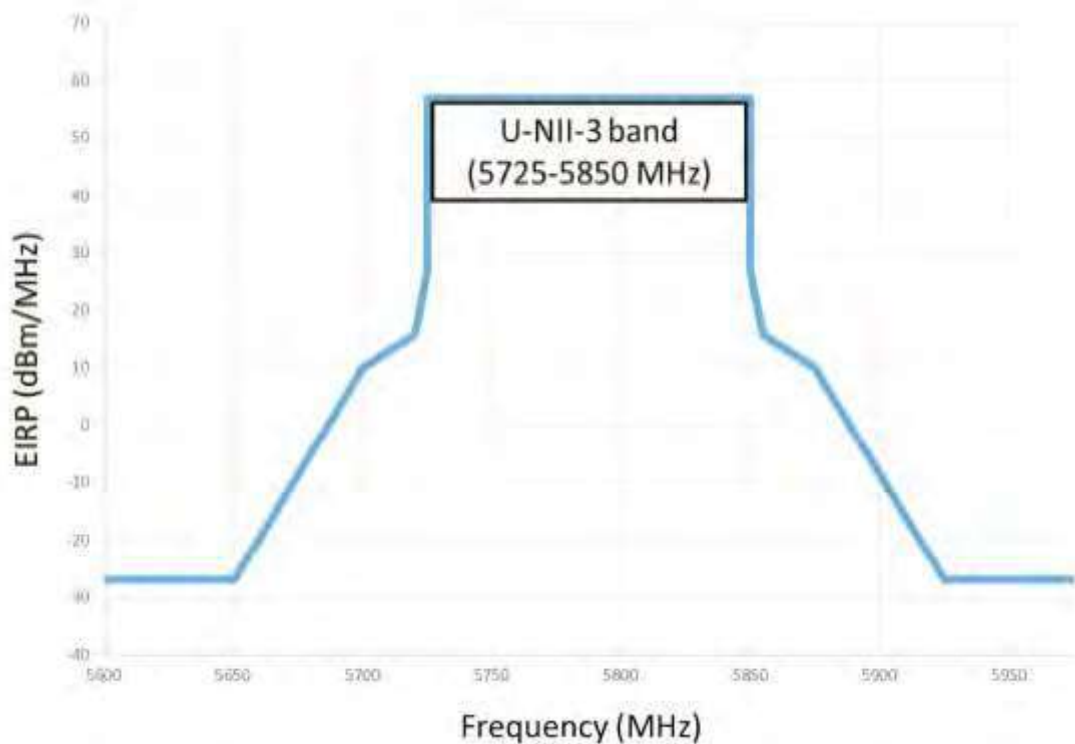
1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

Unwanted Emission out of the restricted bands Test Limit

Frequency (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength (dBuV/m@3m)
5150 - 5250	-27	68.2
5250 - 5350	-27	68.2
5470 - 5725	-27	68.2

For transmitters operating in the 5.725 ~ 5.85 GHz band

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



Remark:

1. For frequencies more than 10 MHz above or below the band edges.
2. For frequency range from the band edges to 10 MHz above or below the band edges.
3.
$$\mu\text{V/m} = \frac{1000000\sqrt{30 \times EIRP}}{3}$$
, RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

8.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

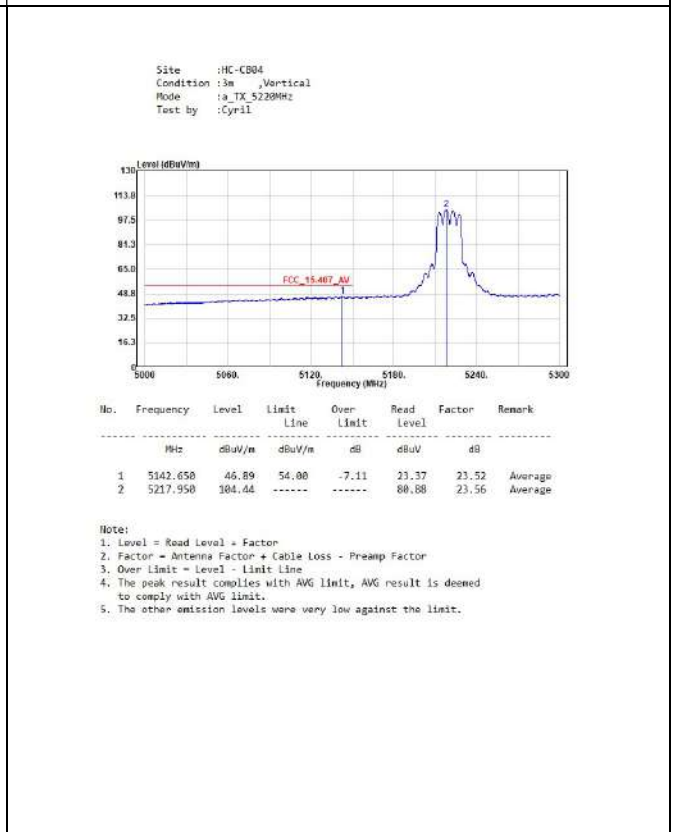
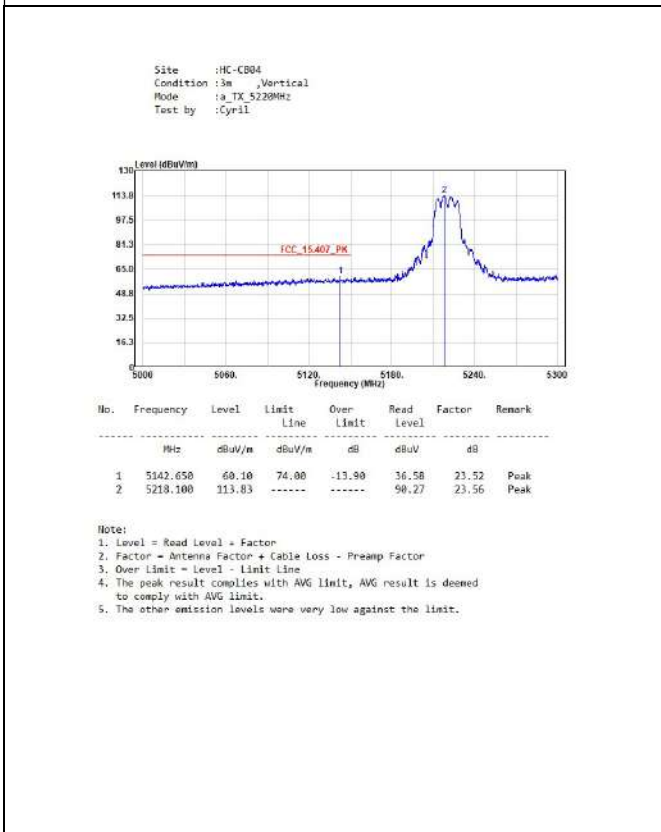
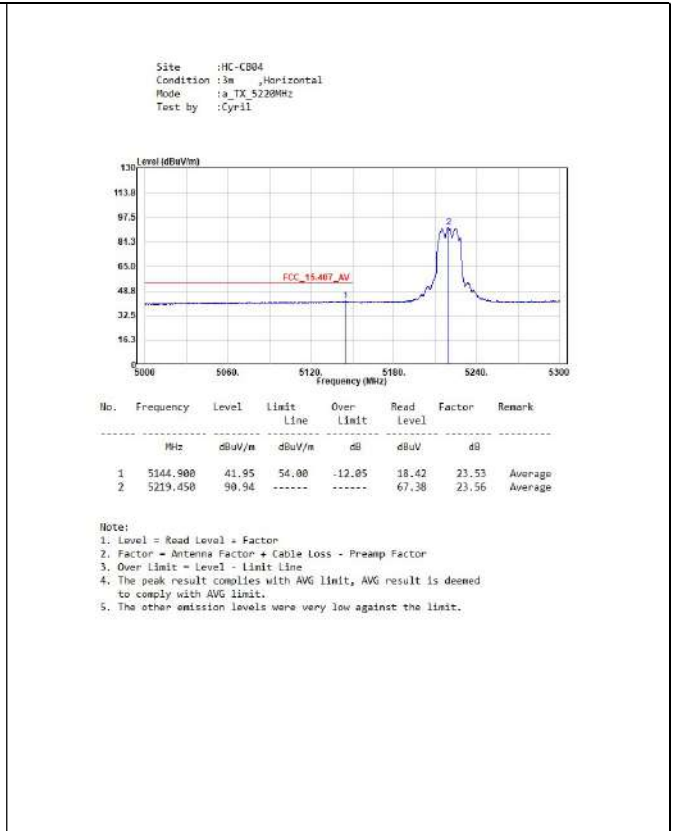
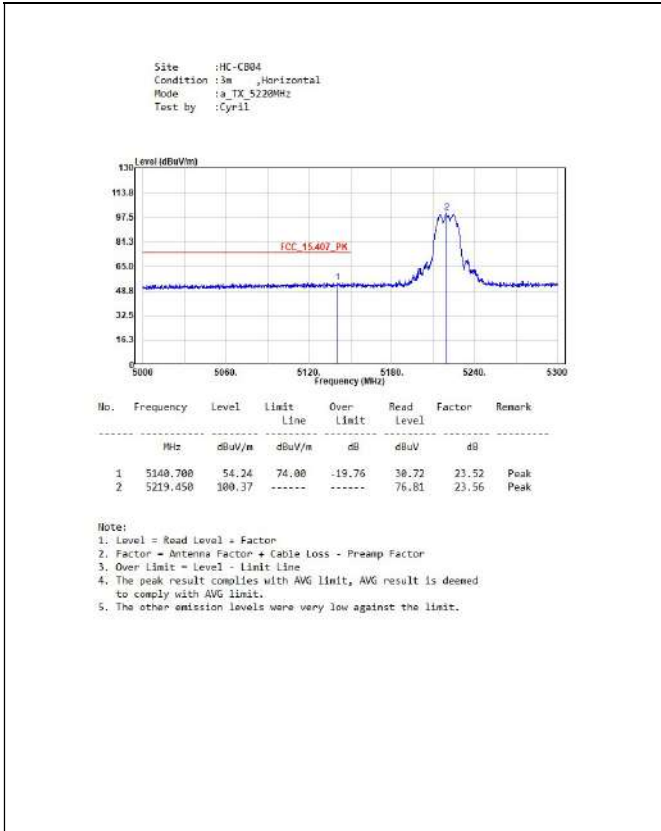
The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

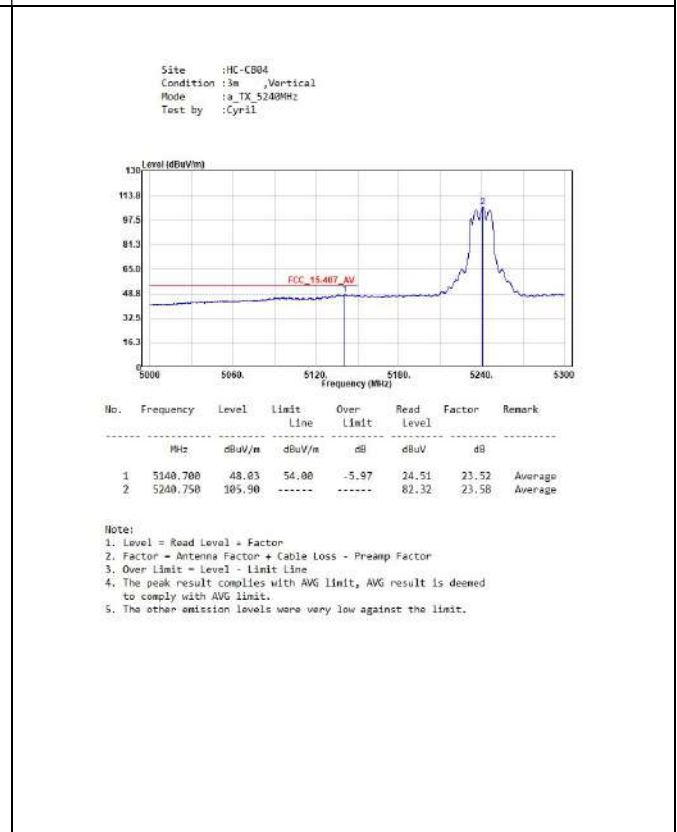
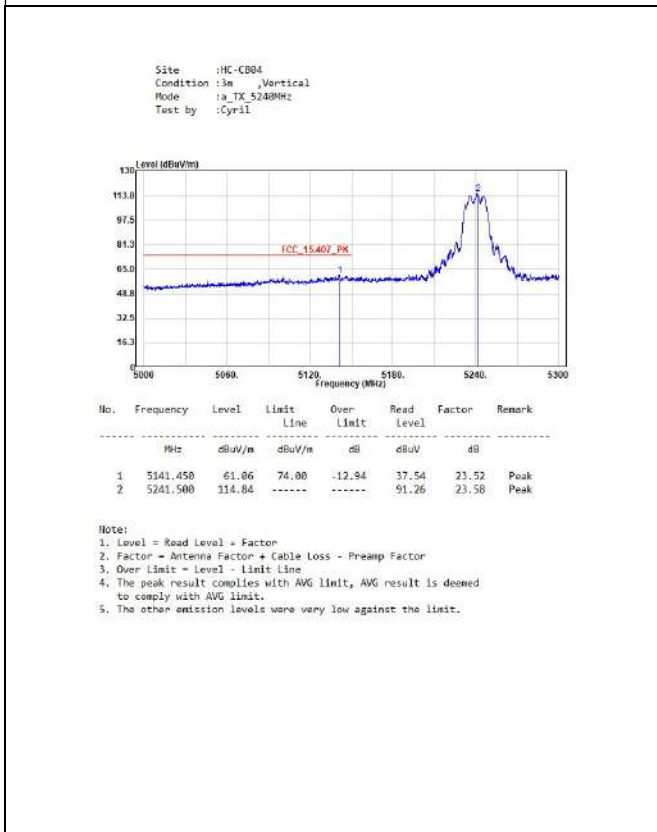
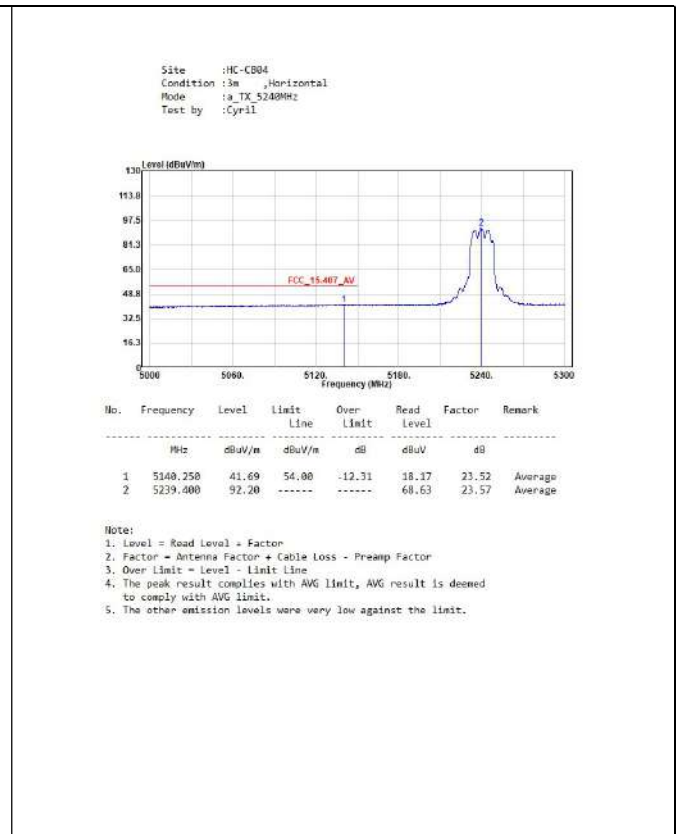
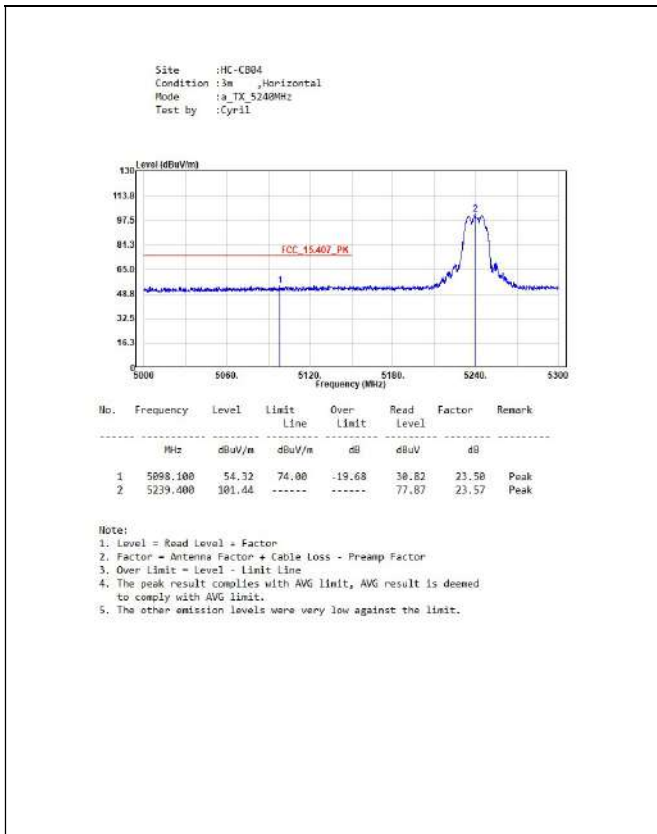
8.4. Test Specification

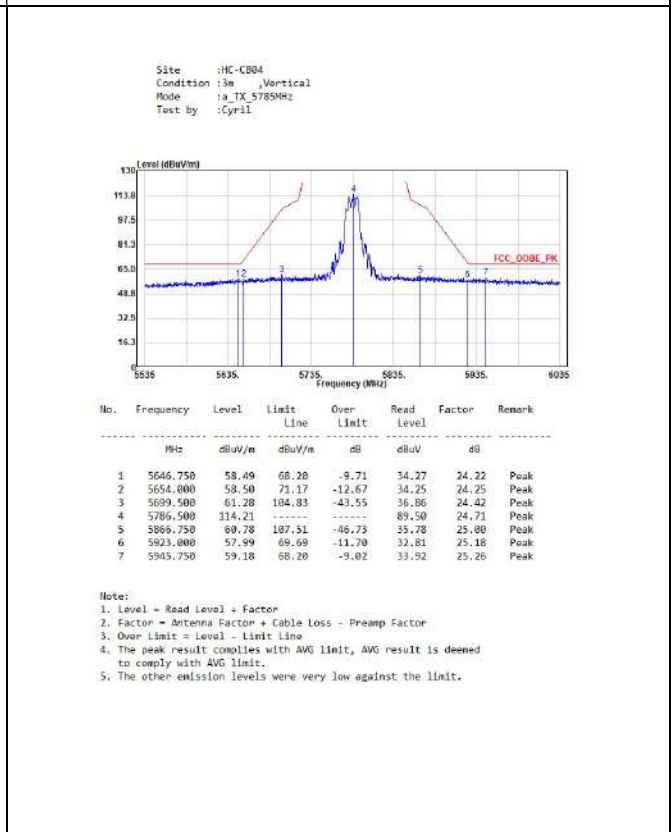
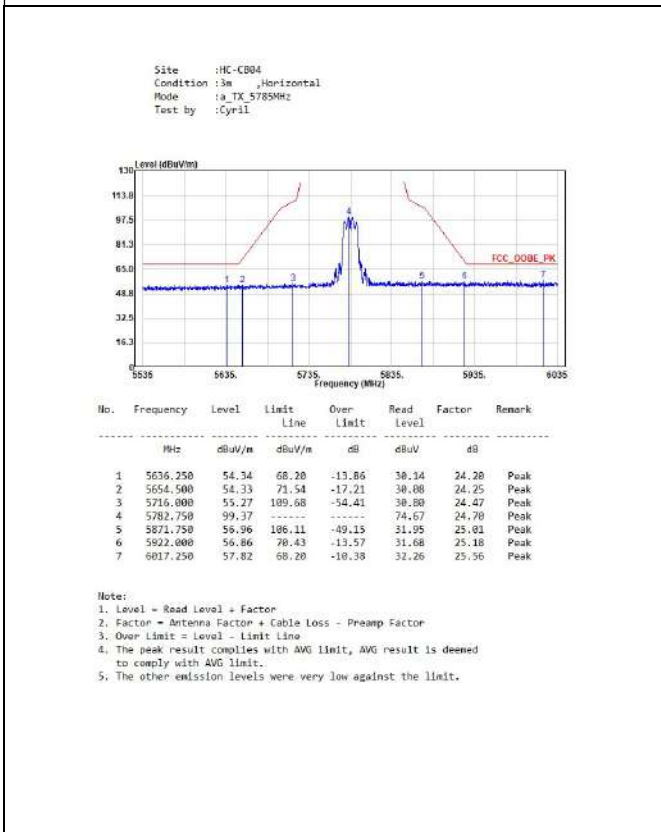
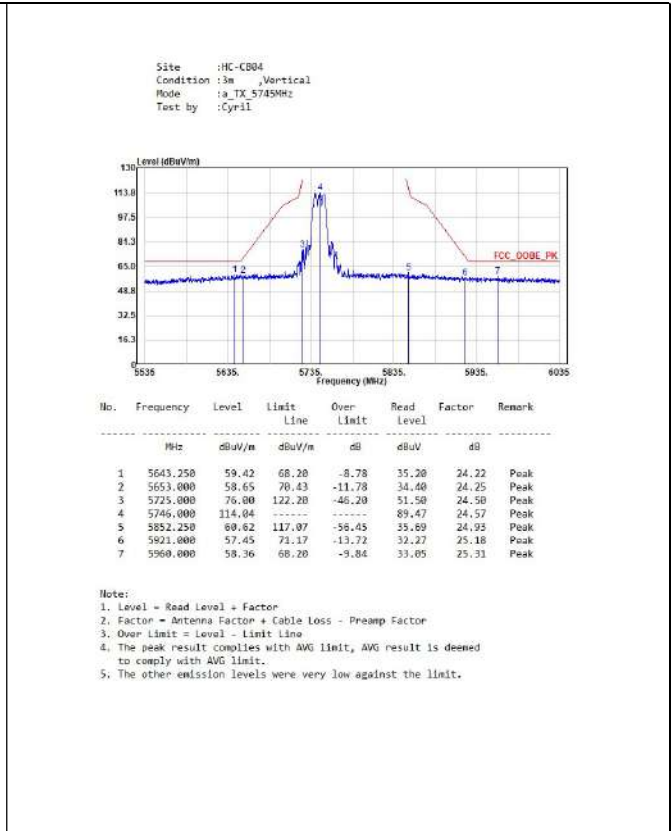
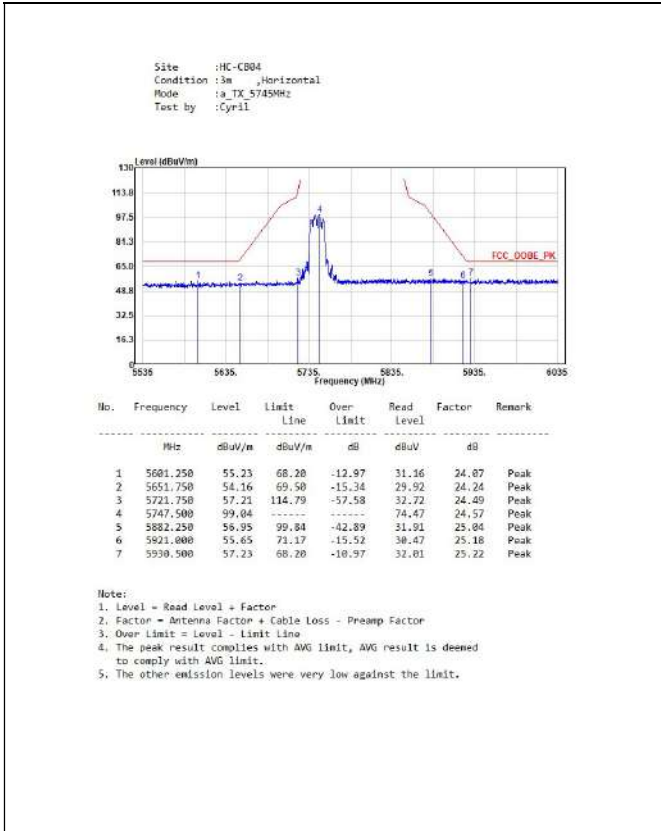
According to FCC CFR Title 47 Part 15 Subpart E.

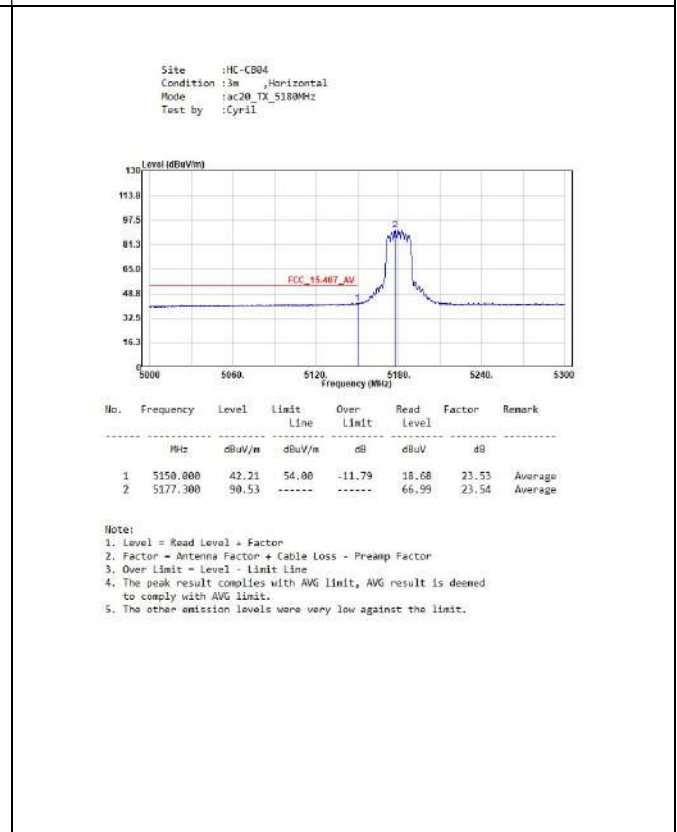
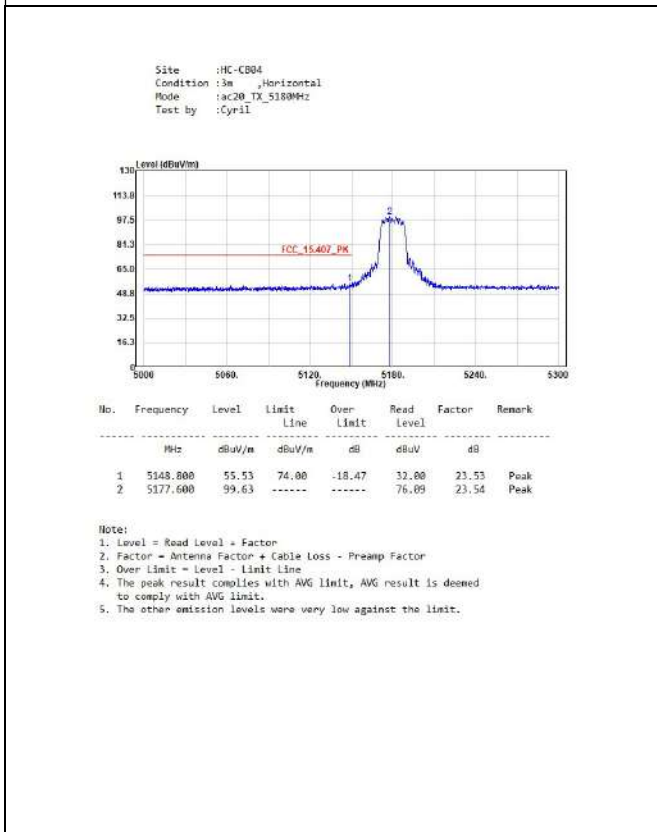
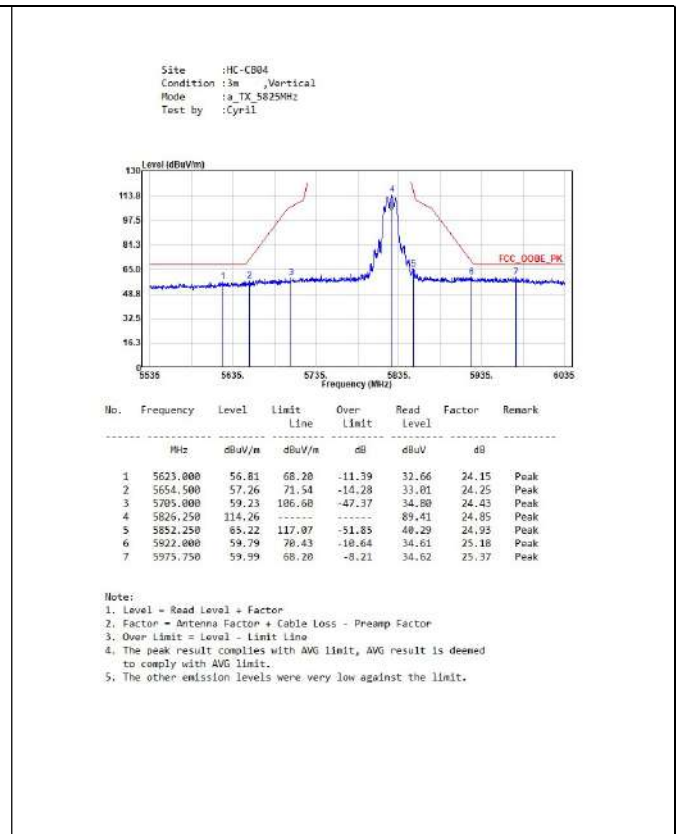
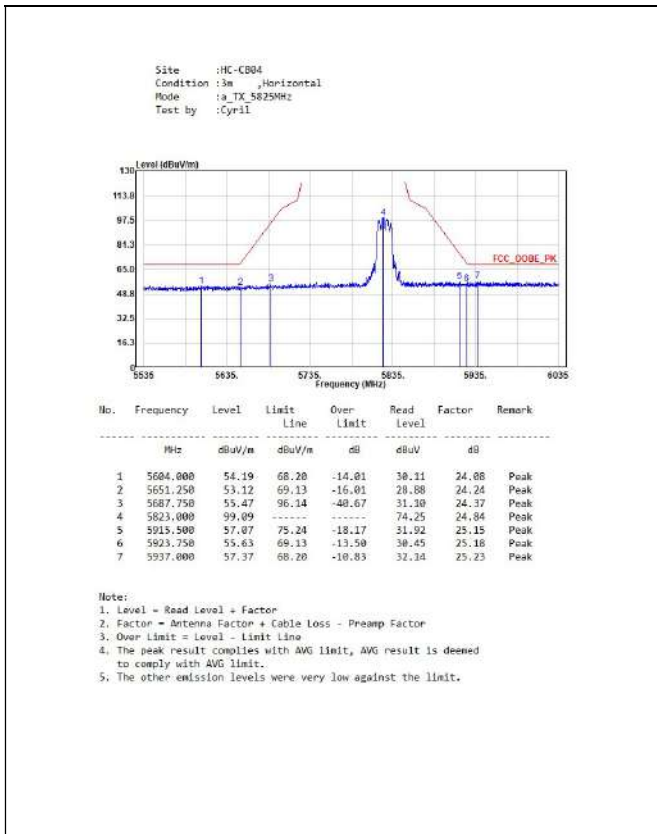
8.5. Test Result of Radiated Emission Band Edge

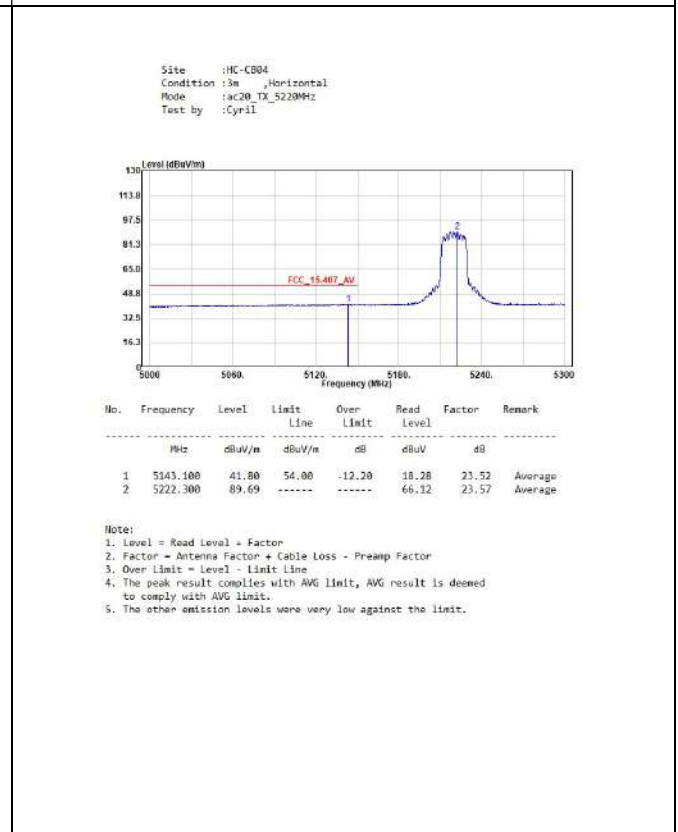
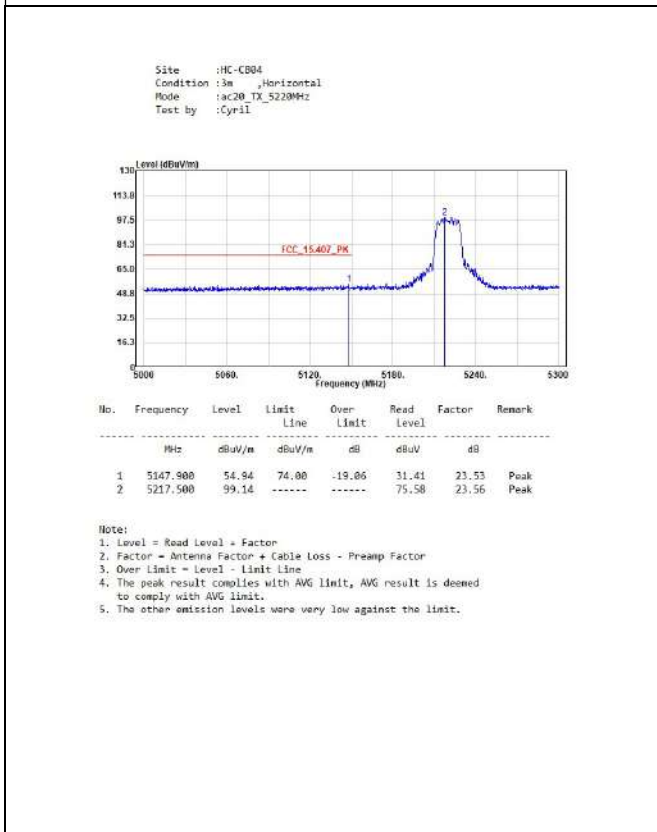
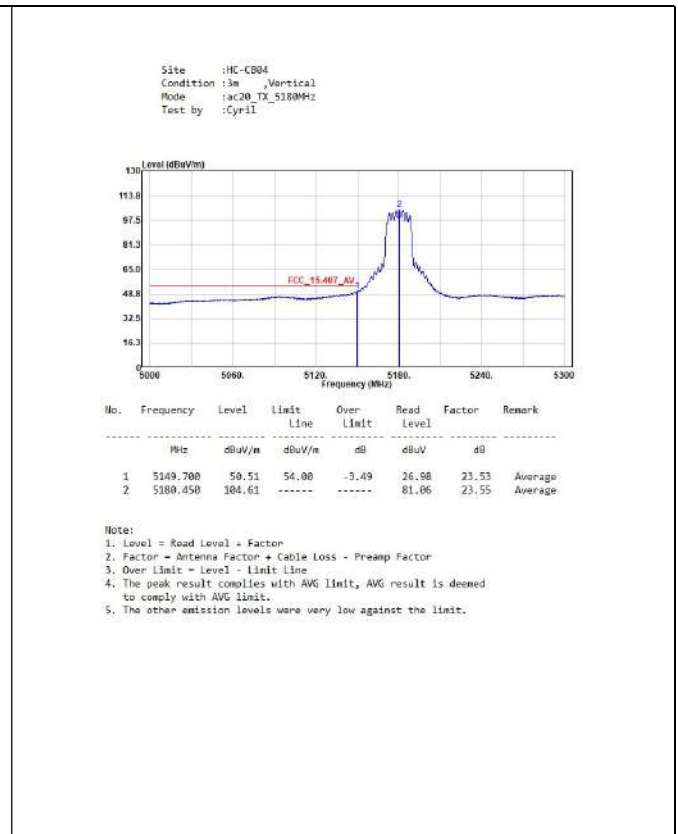
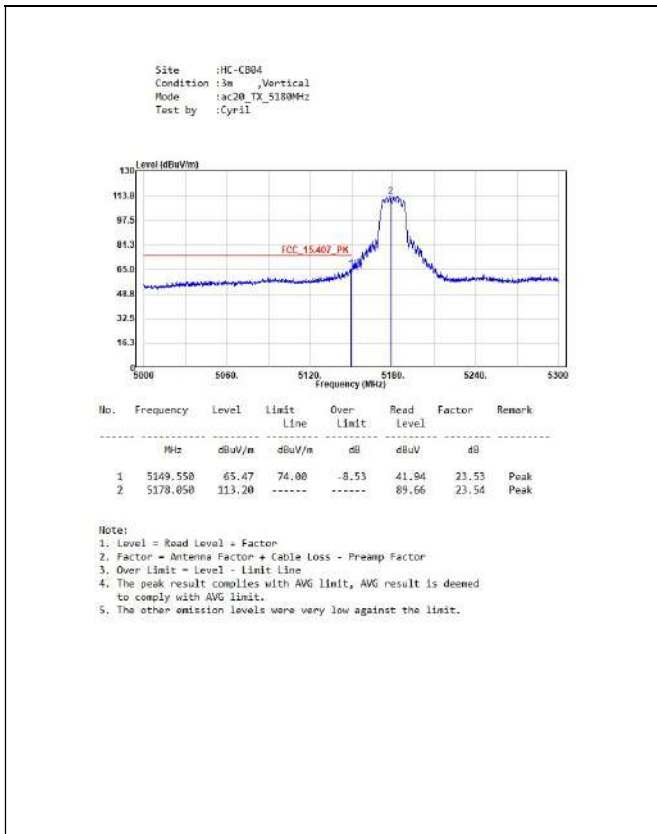
<p>Site :HC-CB04 Condition :3m ,Horizontal Mode :a_TX_5180MHz Test by :Cyril</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency</th> <th>Level</th> <th>Limit</th> <th>Over</th> <th>Read</th> <th>Factor</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV/m</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5147.900</td> <td>54.50</td> <td>74.00</td> <td>-19.50</td> <td>38.97</td> <td>23.53</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5179.400</td> <td>101.33</td> <td>-----</td> <td>-----</td> <td>77.78</td> <td>23.55</td> <td>Peak</td> </tr> </tbody> </table> <p>Notes: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit. 5. The other emission levels were very low against the limit.</p>	No.	Frequency	Level	Limit	Over	Read	Factor	Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB		1	5147.900	54.50	74.00	-19.50	38.97	23.53	Peak	2	5179.400	101.33	-----	-----	77.78	23.55	Peak	<p>Site :HC-CB04 Condition :3m ,Horizontal Mode :a_TX_5180MHz Test by :Cyril</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency</th> <th>Level</th> <th>Limit</th> <th>Over</th> <th>Read</th> <th>Factor</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV/m</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5149.550</td> <td>42.02</td> <td>54.00</td> <td>-11.98</td> <td>18.49</td> <td>23.53</td> <td>Average</td> </tr> <tr> <td>2</td> <td>5179.250</td> <td>91.66</td> <td>-----</td> <td>-----</td> <td>68.11</td> <td>23.55</td> <td>Average</td> </tr> </tbody> </table> <p>Notes: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit. 5. The other emission levels were very low against the limit.</p>	No.	Frequency	Level	Limit	Over	Read	Factor	Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB		1	5149.550	42.02	54.00	-11.98	18.49	23.53	Average	2	5179.250	91.66	-----	-----	68.11	23.55	Average
No.	Frequency	Level	Limit	Over	Read	Factor	Remark																																																										
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB																																																											
1	5147.900	54.50	74.00	-19.50	38.97	23.53	Peak																																																										
2	5179.400	101.33	-----	-----	77.78	23.55	Peak																																																										
No.	Frequency	Level	Limit	Over	Read	Factor	Remark																																																										
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB																																																											
1	5149.550	42.02	54.00	-11.98	18.49	23.53	Average																																																										
2	5179.250	91.66	-----	-----	68.11	23.55	Average																																																										
<p>Site :HC-CB04 Condition :3m ,Vertical Mode :a_TX_5180MHz Test by :Cyril</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency</th> <th>Level</th> <th>Limit</th> <th>Over</th> <th>Read</th> <th>Factor</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV/m</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5146.700</td> <td>67.35</td> <td>74.00</td> <td>-6.65</td> <td>43.82</td> <td>23.53</td> <td>Peak</td> </tr> <tr> <td>2</td> <td>5181.200</td> <td>115.23</td> <td>-----</td> <td>-----</td> <td>91.68</td> <td>23.55</td> <td>Peak</td> </tr> </tbody> </table> <p>Notes: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit. 5. The other emission levels were very low against the limit.</p>	No.	Frequency	Level	Limit	Over	Read	Factor	Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB		1	5146.700	67.35	74.00	-6.65	43.82	23.53	Peak	2	5181.200	115.23	-----	-----	91.68	23.55	Peak	<p>Site :HC-CB04 Condition :3m ,Vertical Mode :a_TX_5180MHz Test by :Cyril</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency</th> <th>Level</th> <th>Limit</th> <th>Over</th> <th>Read</th> <th>Factor</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV/m</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5150.000</td> <td>50.36</td> <td>54.00</td> <td>-3.64</td> <td>26.83</td> <td>23.53</td> <td>Average</td> </tr> <tr> <td>2</td> <td>5180.900</td> <td>105.94</td> <td>-----</td> <td>-----</td> <td>82.39</td> <td>23.55</td> <td>Average</td> </tr> </tbody> </table> <p>Notes: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit. 5. The other emission levels were very low against the limit.</p>	No.	Frequency	Level	Limit	Over	Read	Factor	Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB		1	5150.000	50.36	54.00	-3.64	26.83	23.53	Average	2	5180.900	105.94	-----	-----	82.39	23.55	Average
No.	Frequency	Level	Limit	Over	Read	Factor	Remark																																																										
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB																																																											
1	5146.700	67.35	74.00	-6.65	43.82	23.53	Peak																																																										
2	5181.200	115.23	-----	-----	91.68	23.55	Peak																																																										
No.	Frequency	Level	Limit	Over	Read	Factor	Remark																																																										
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB																																																											
1	5150.000	50.36	54.00	-3.64	26.83	23.53	Average																																																										
2	5180.900	105.94	-----	-----	82.39	23.55	Average																																																										

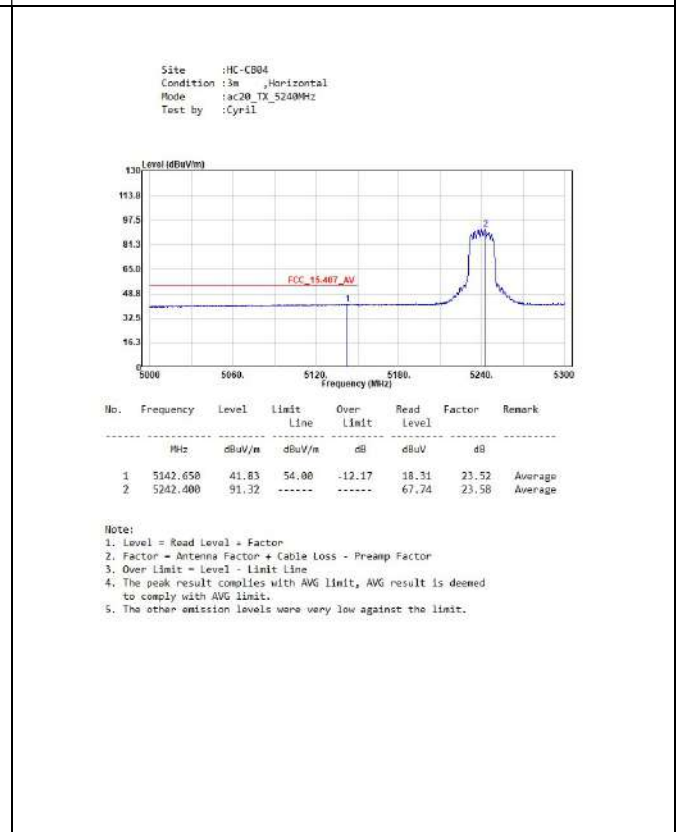
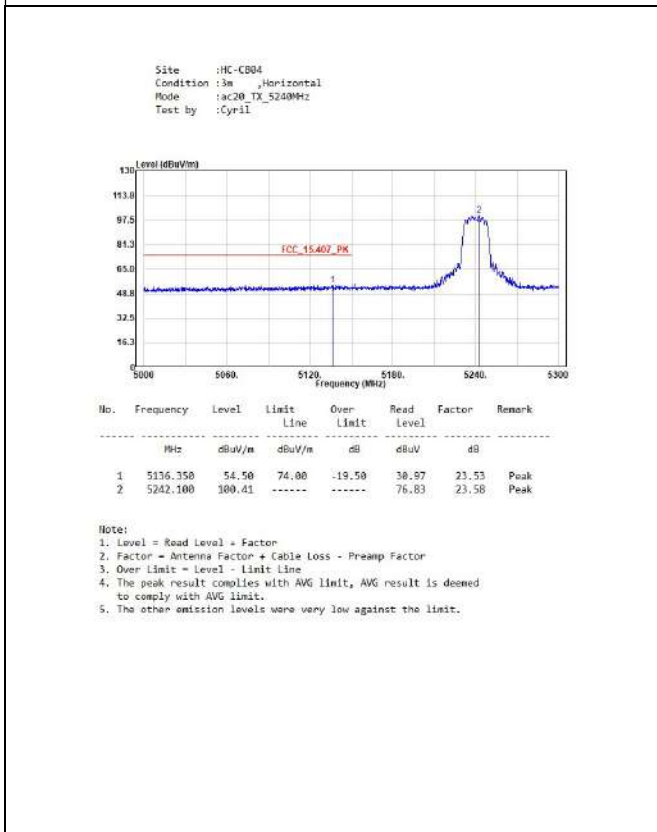
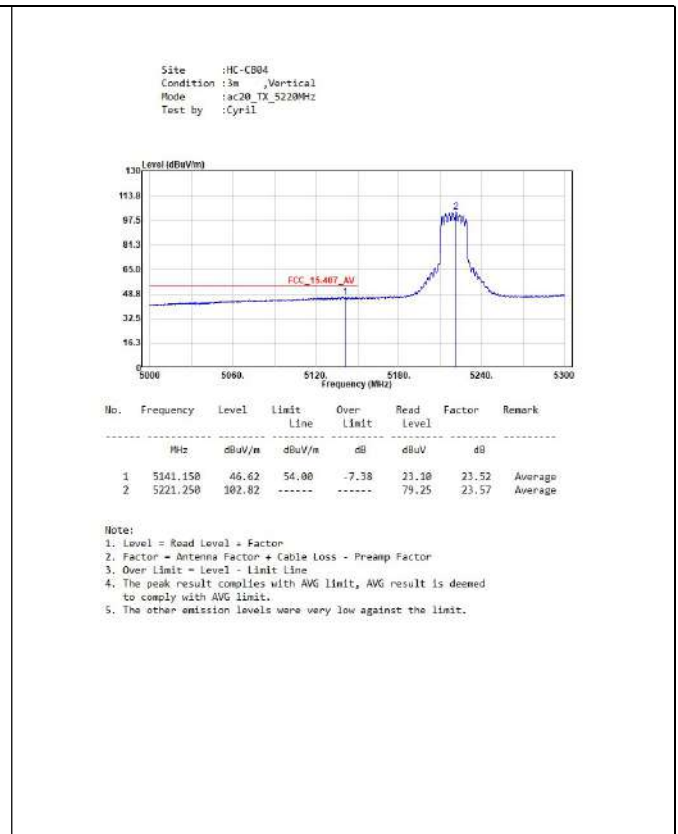
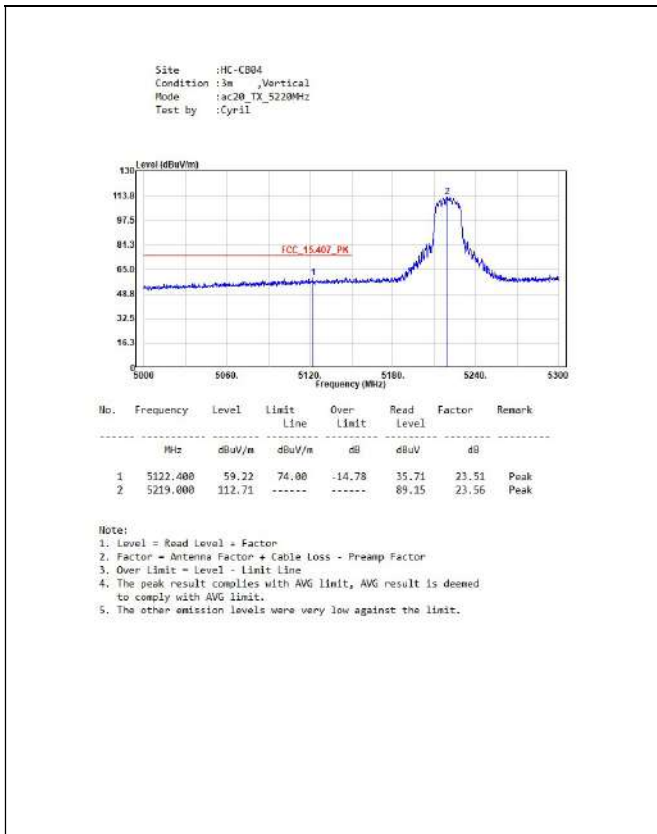


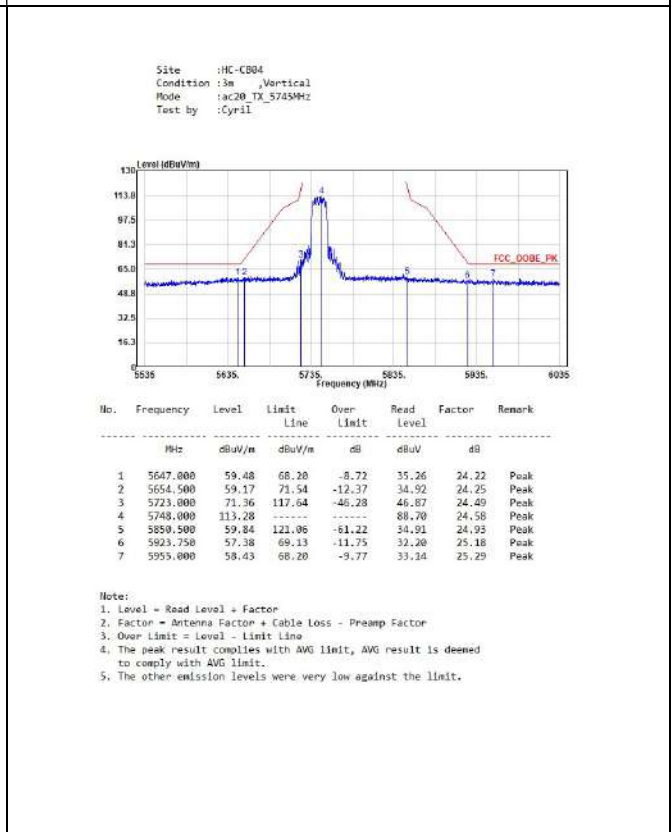
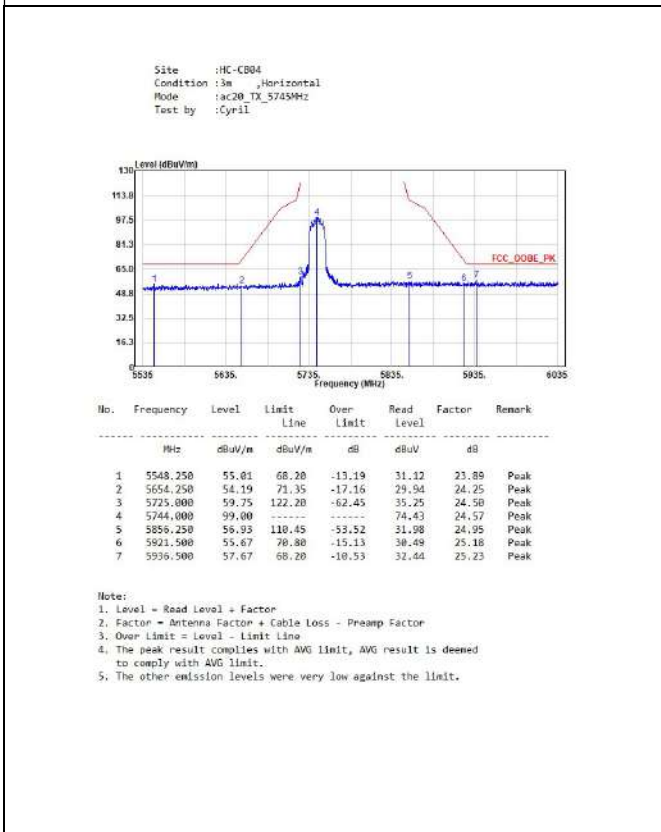
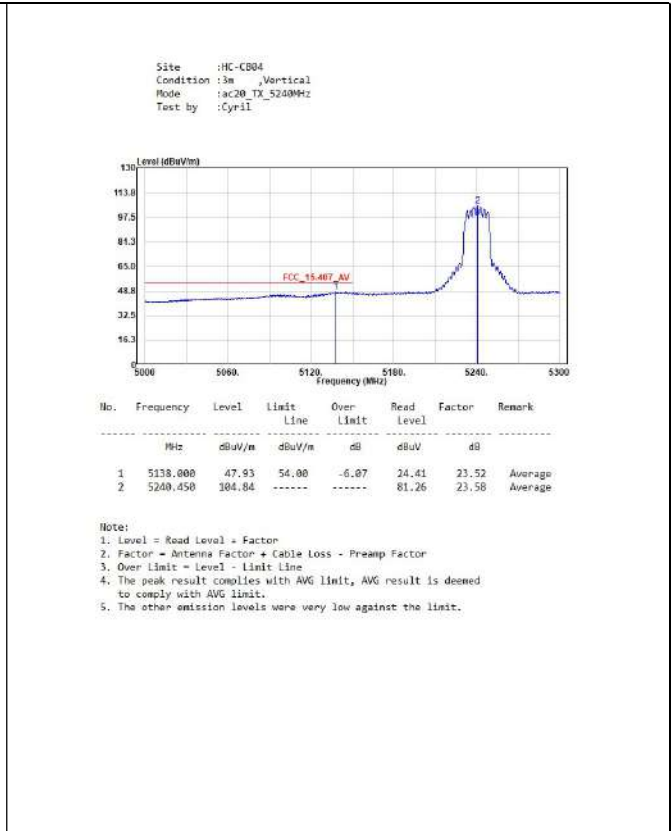
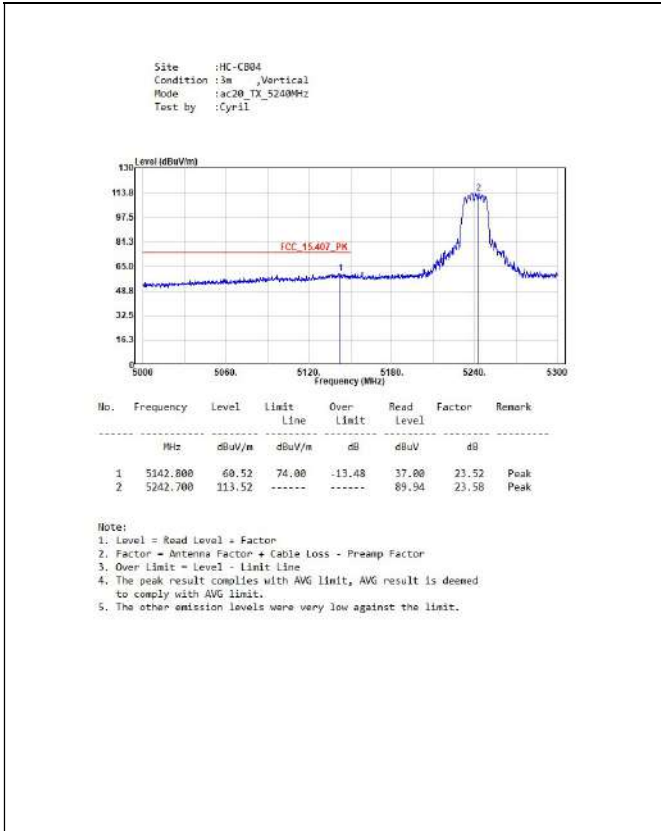


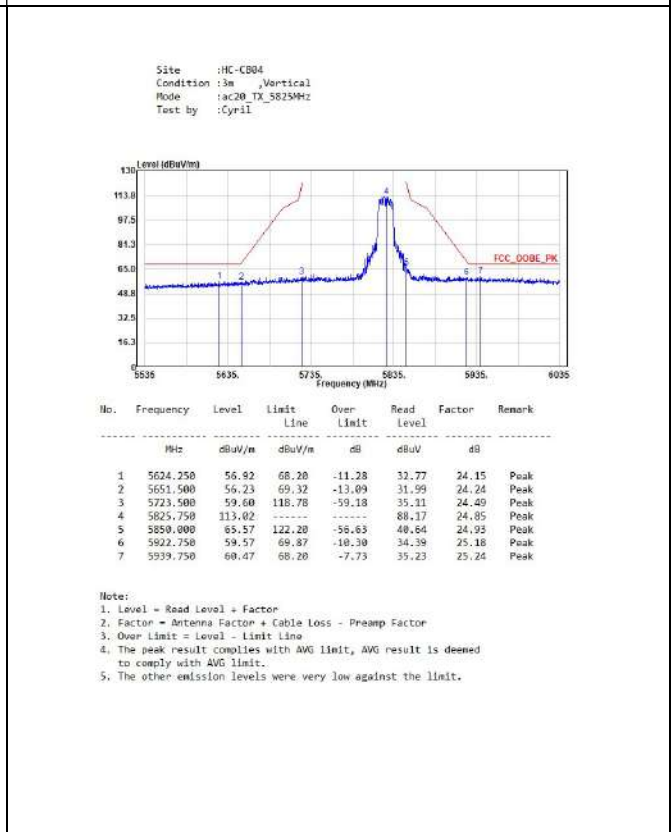
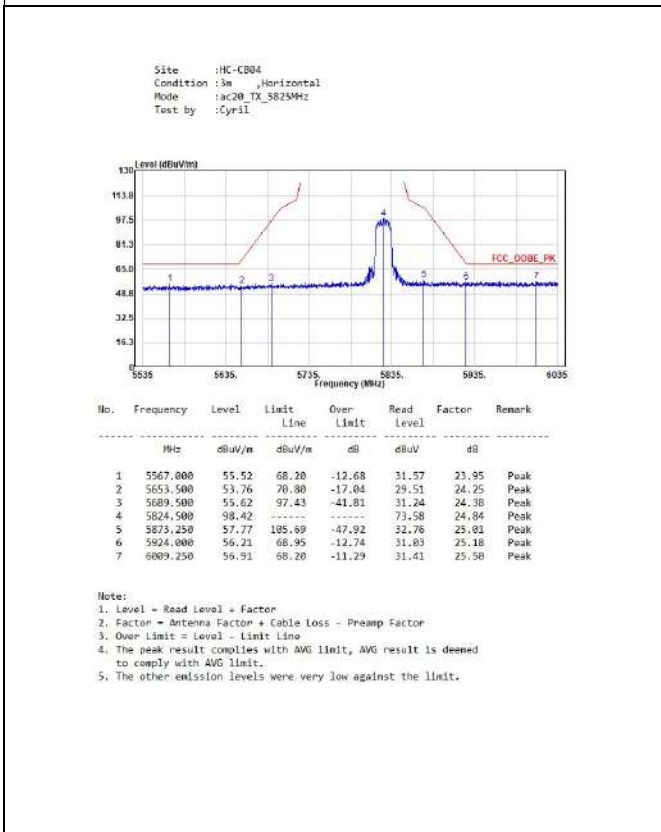
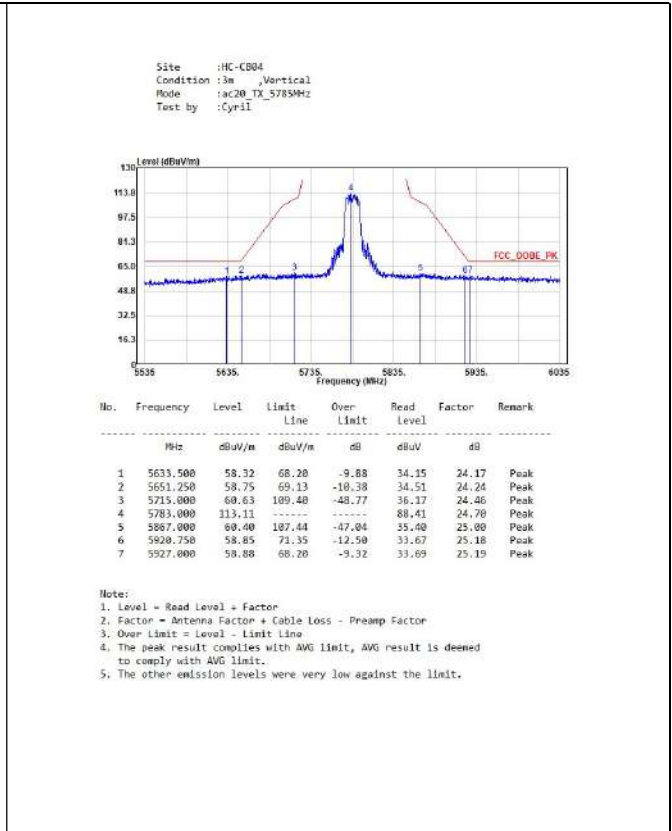
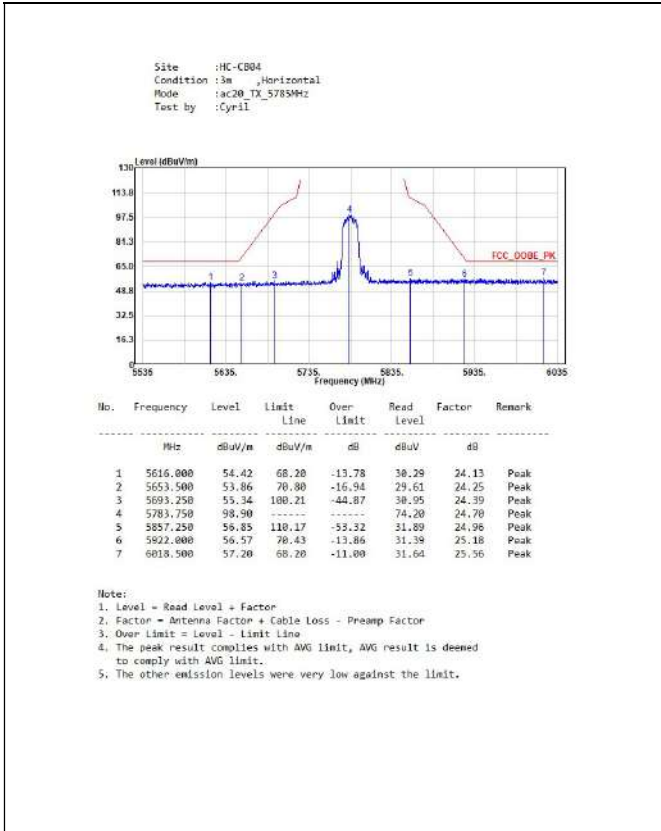


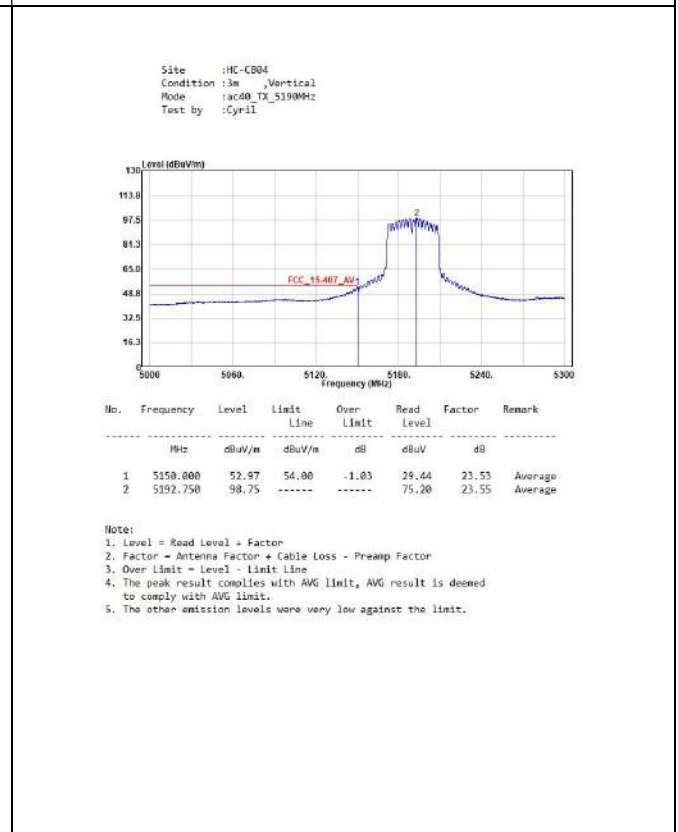
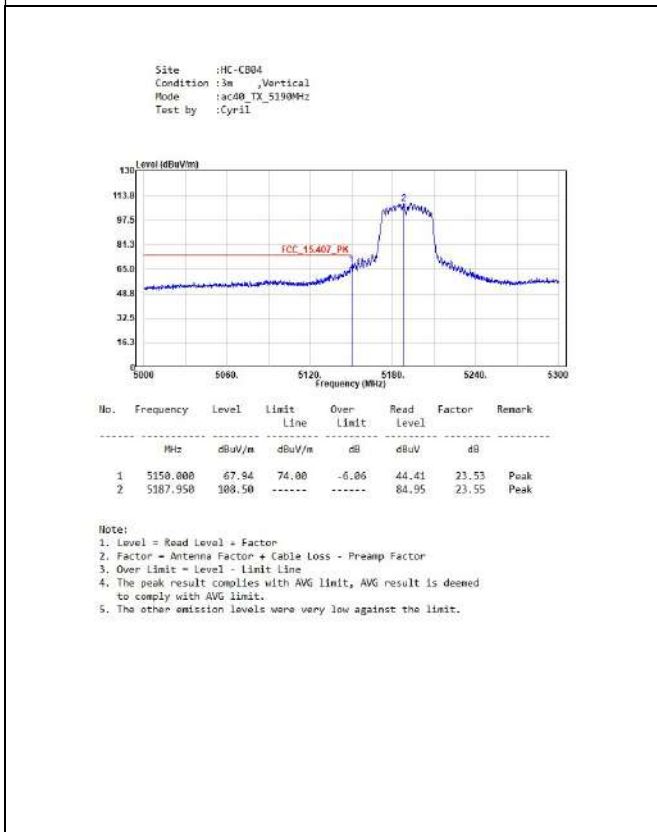
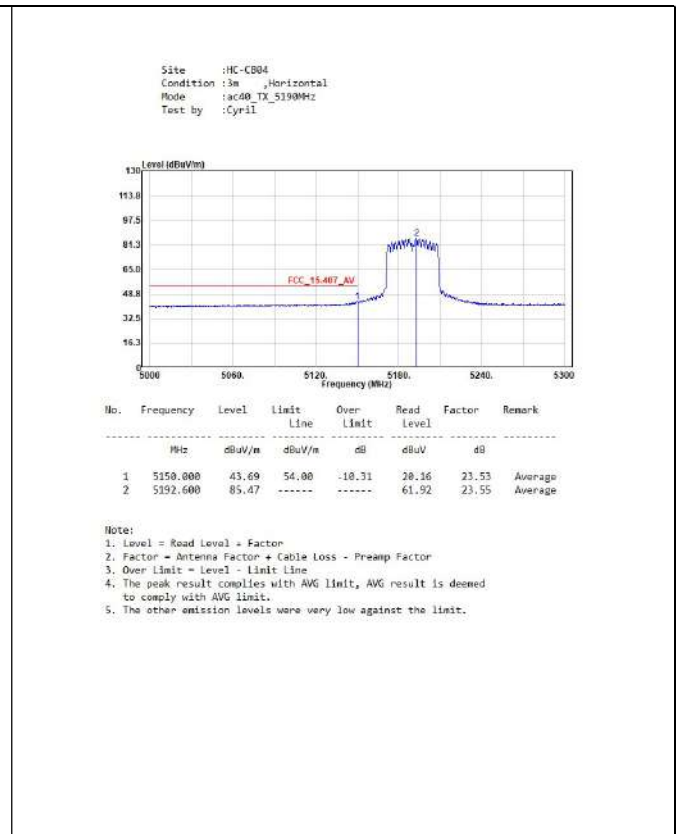
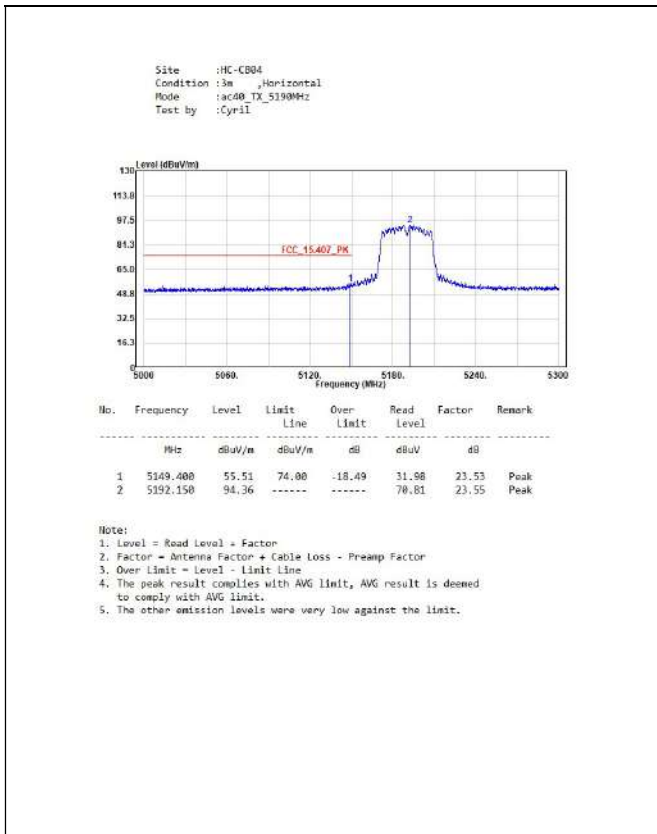


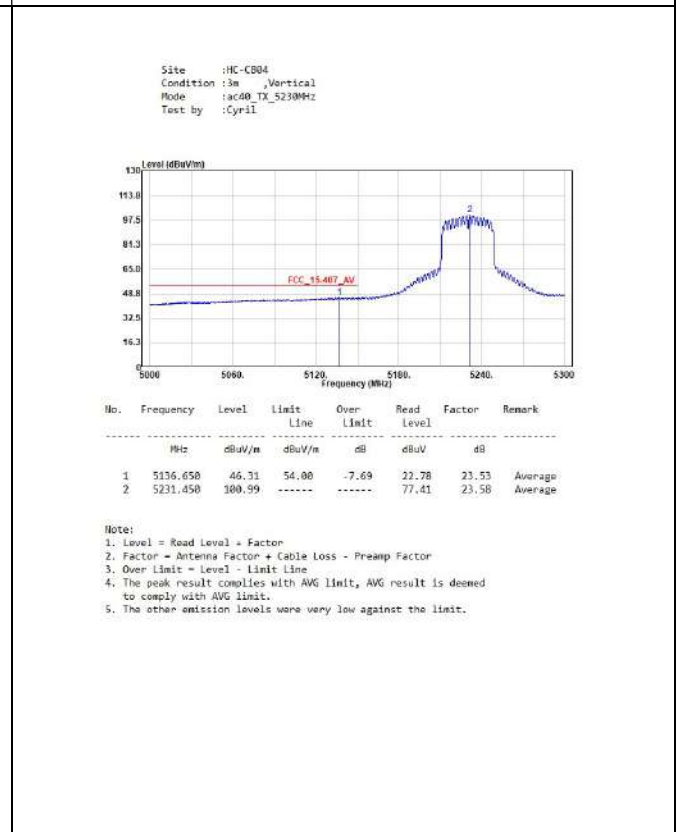
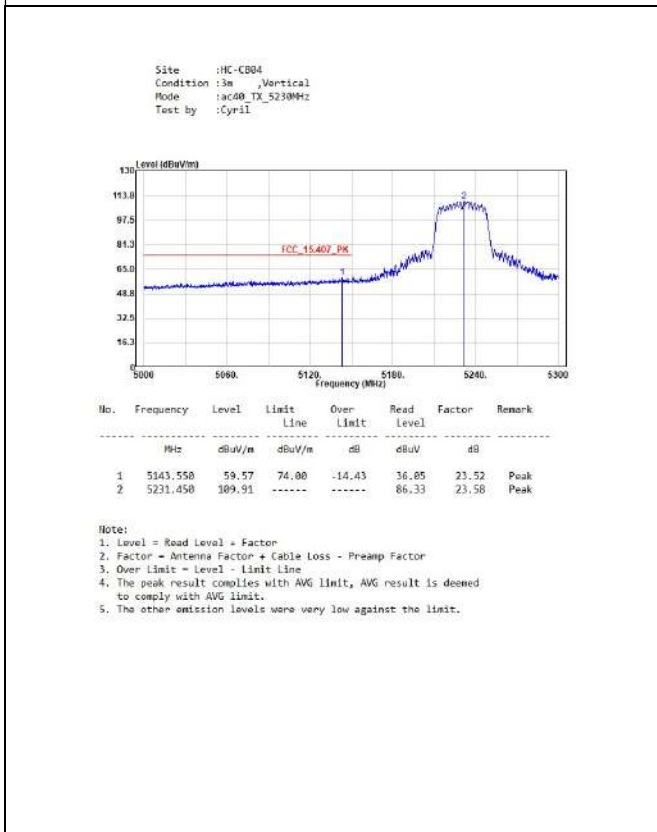
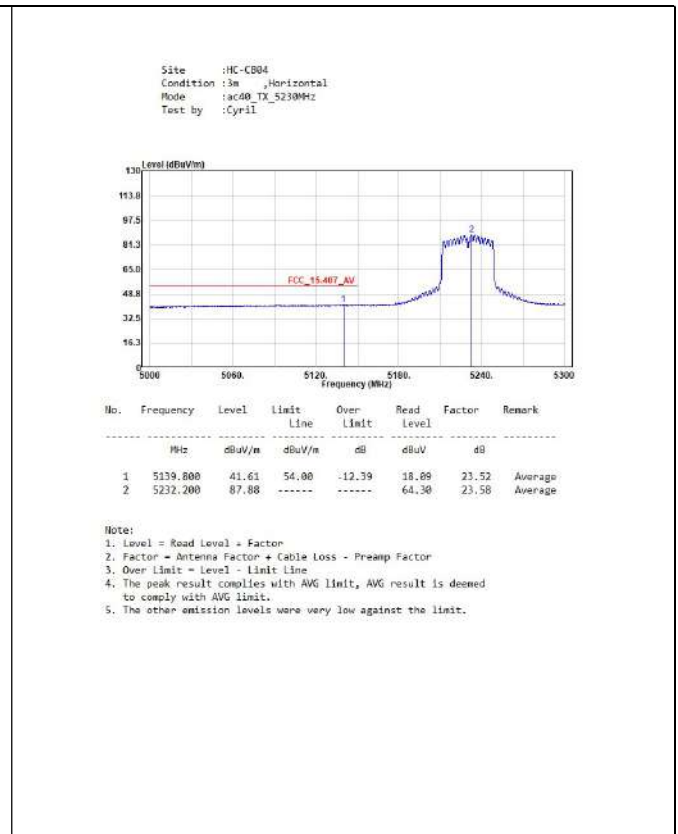
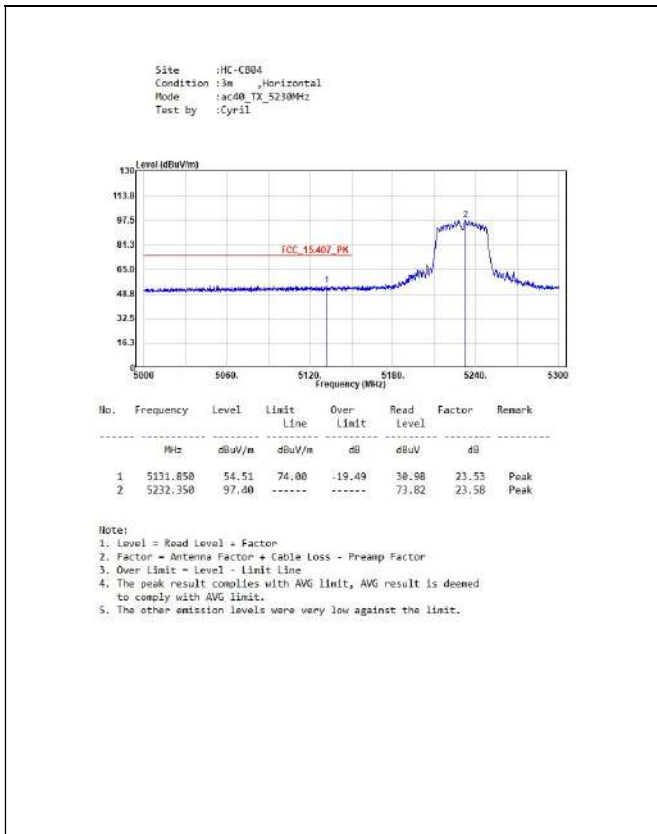


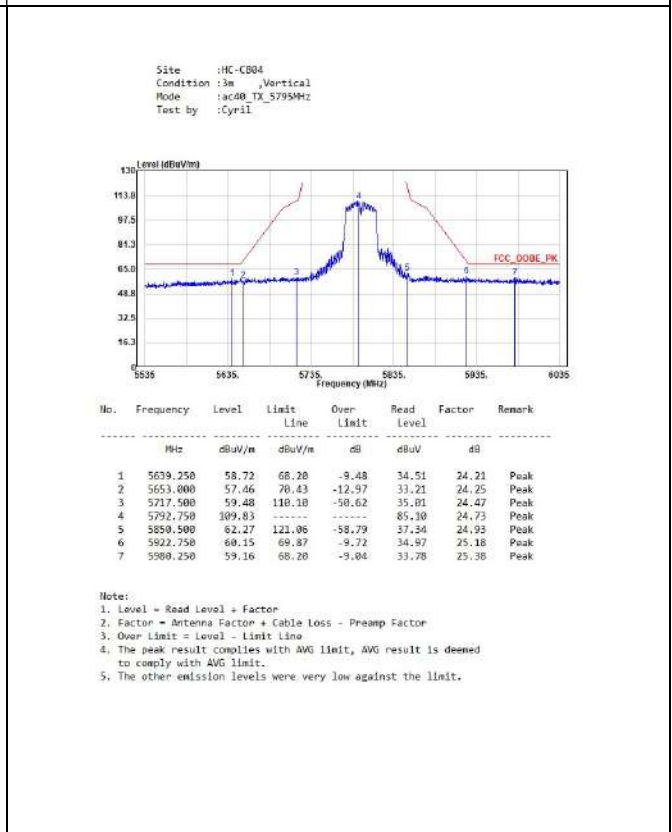
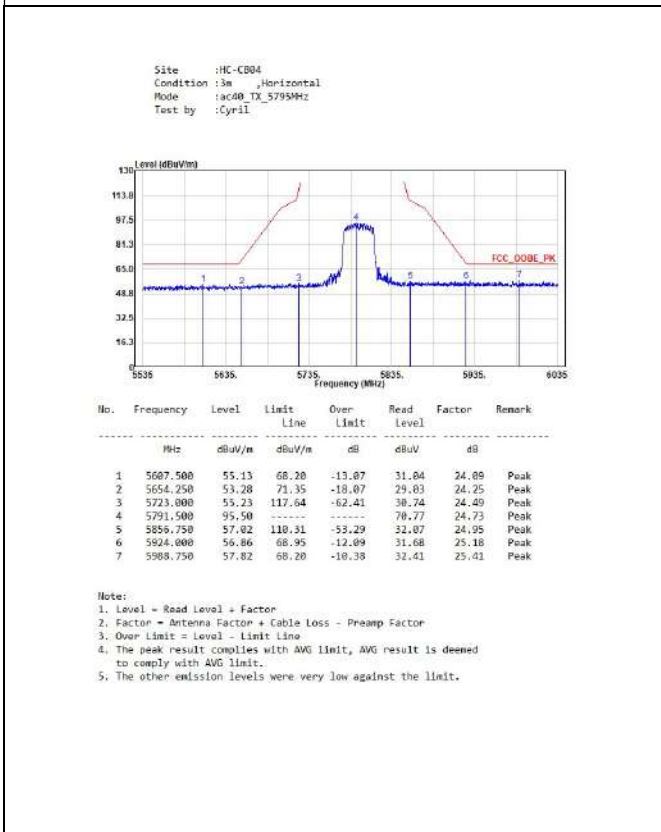
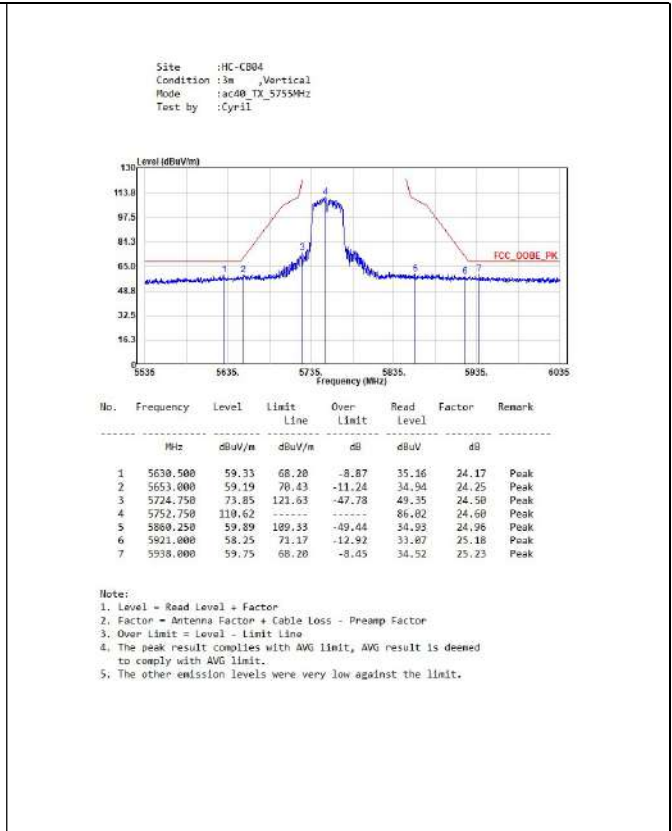
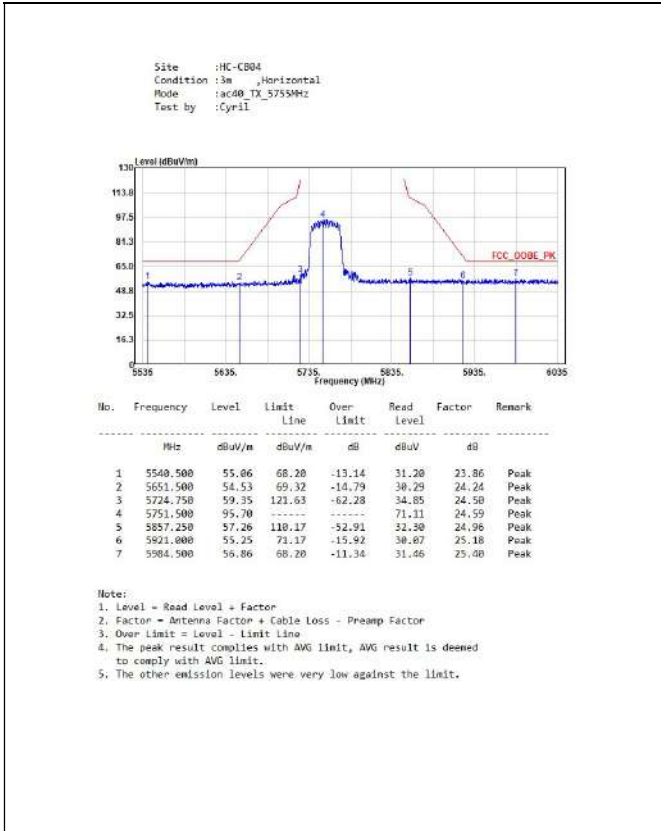


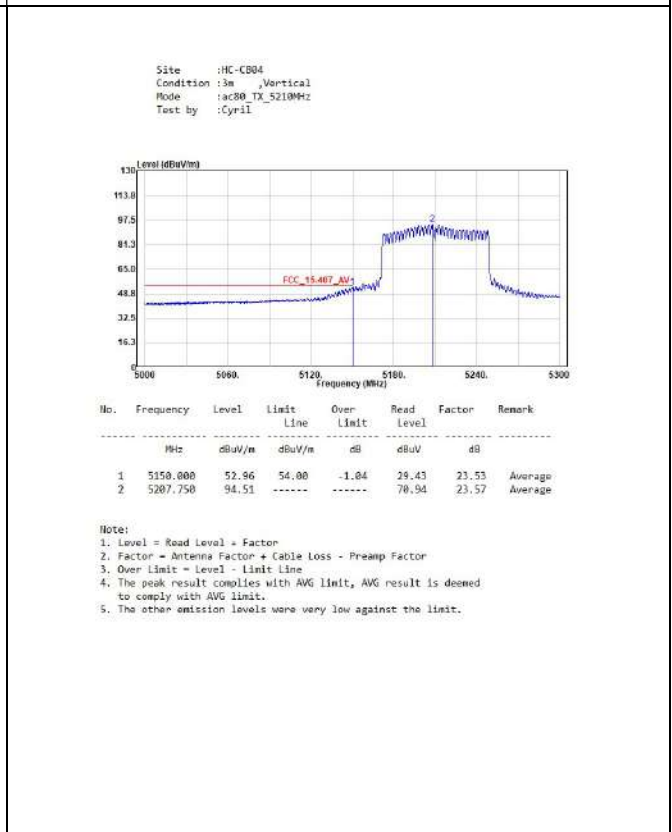
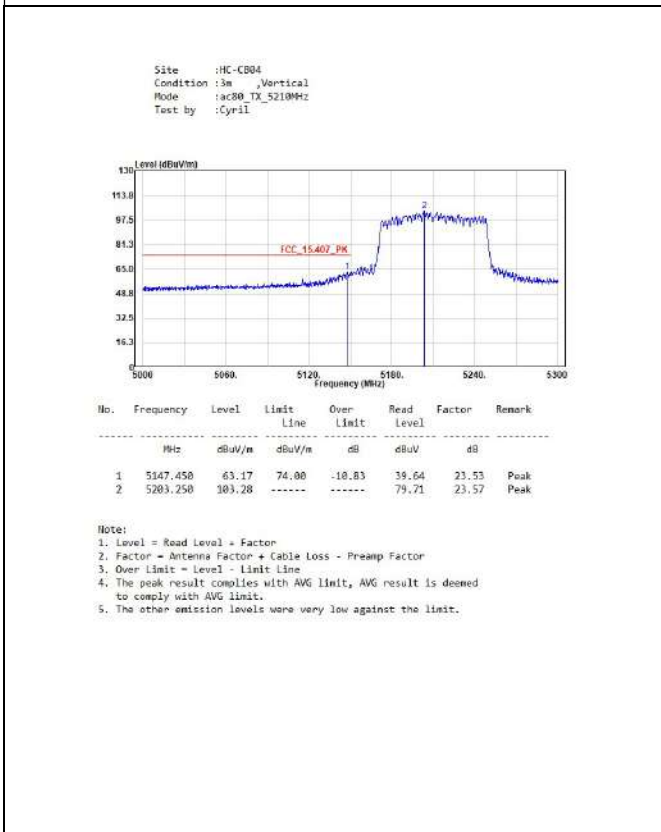
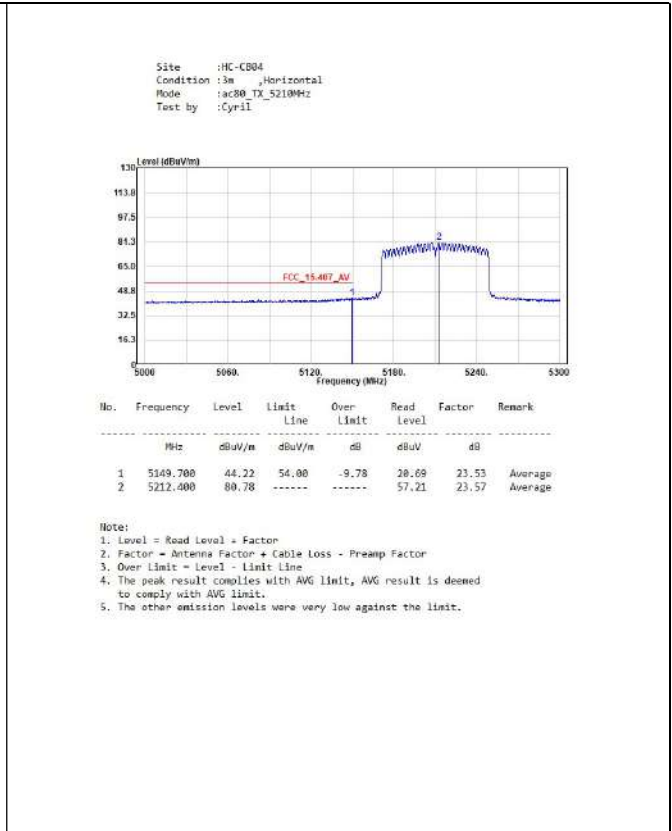
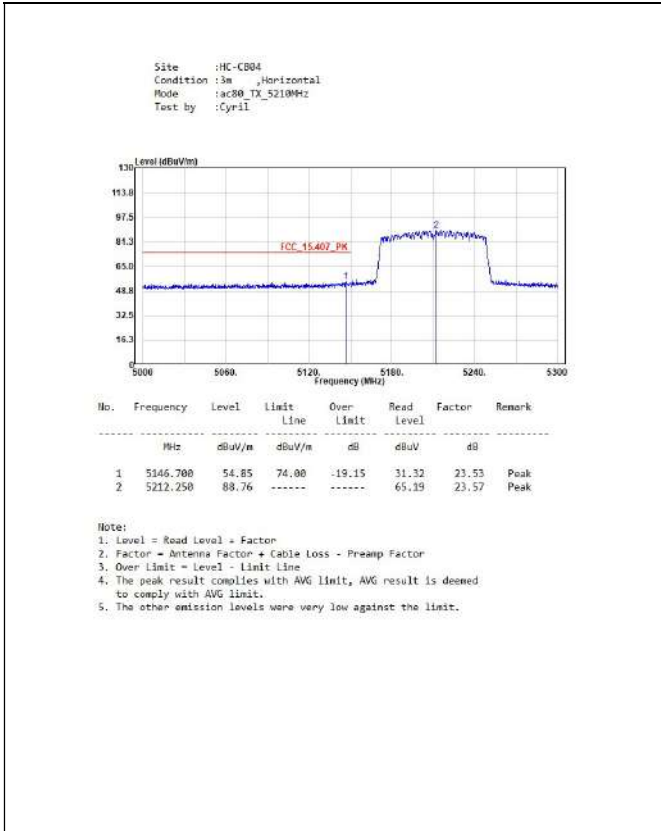


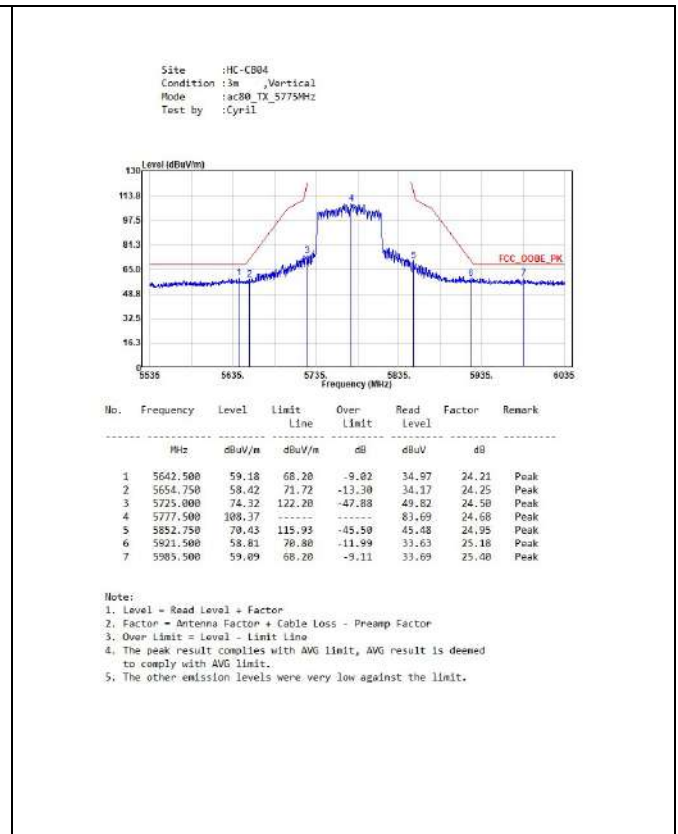
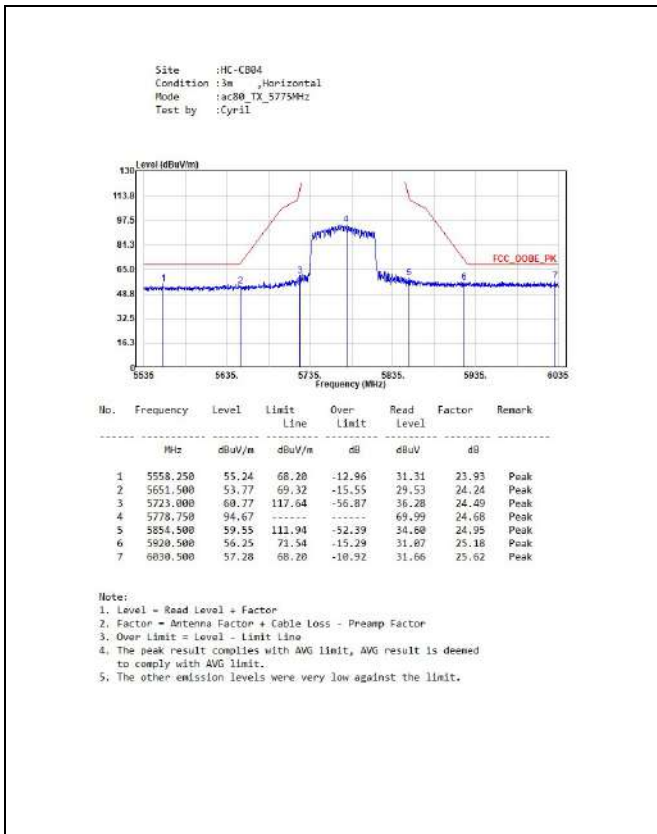












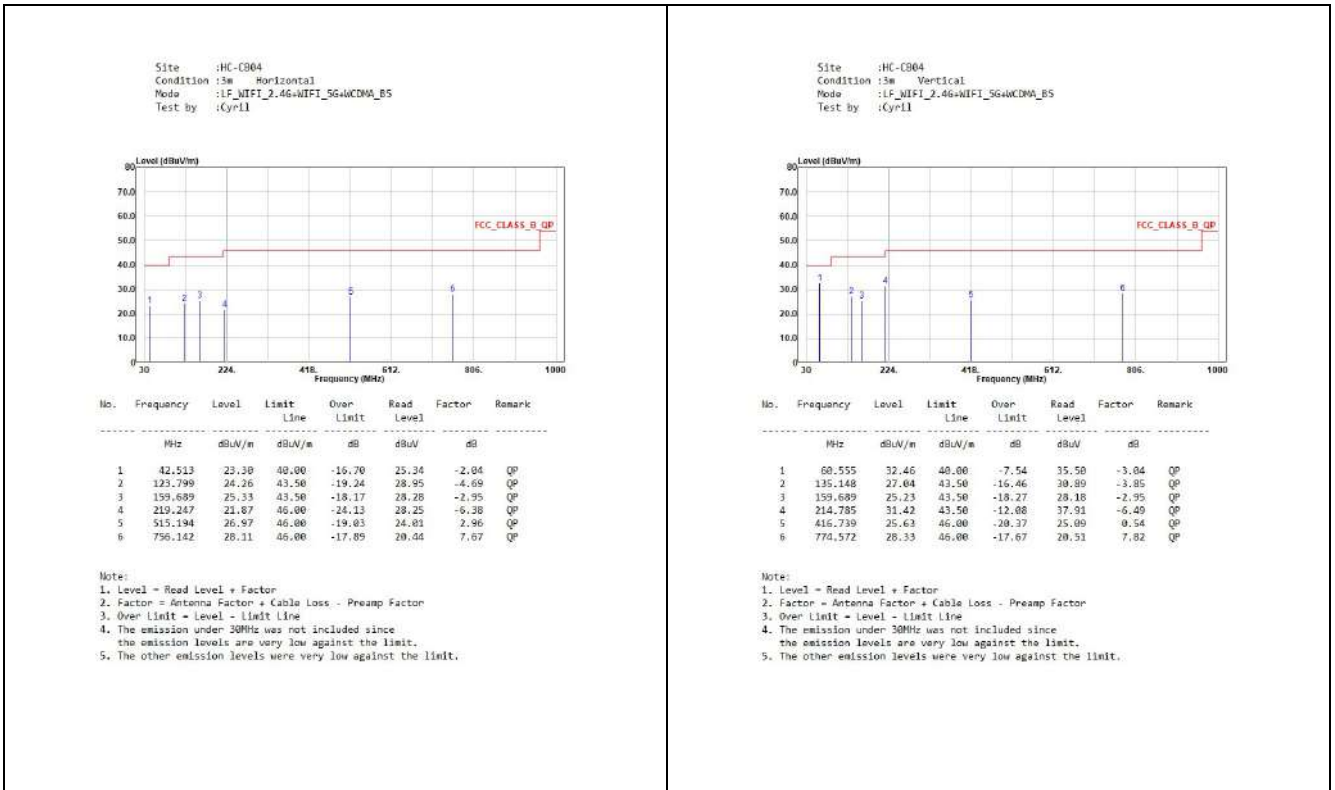
Appendix A

➤ Test Result of Radiated Emissions Co-location

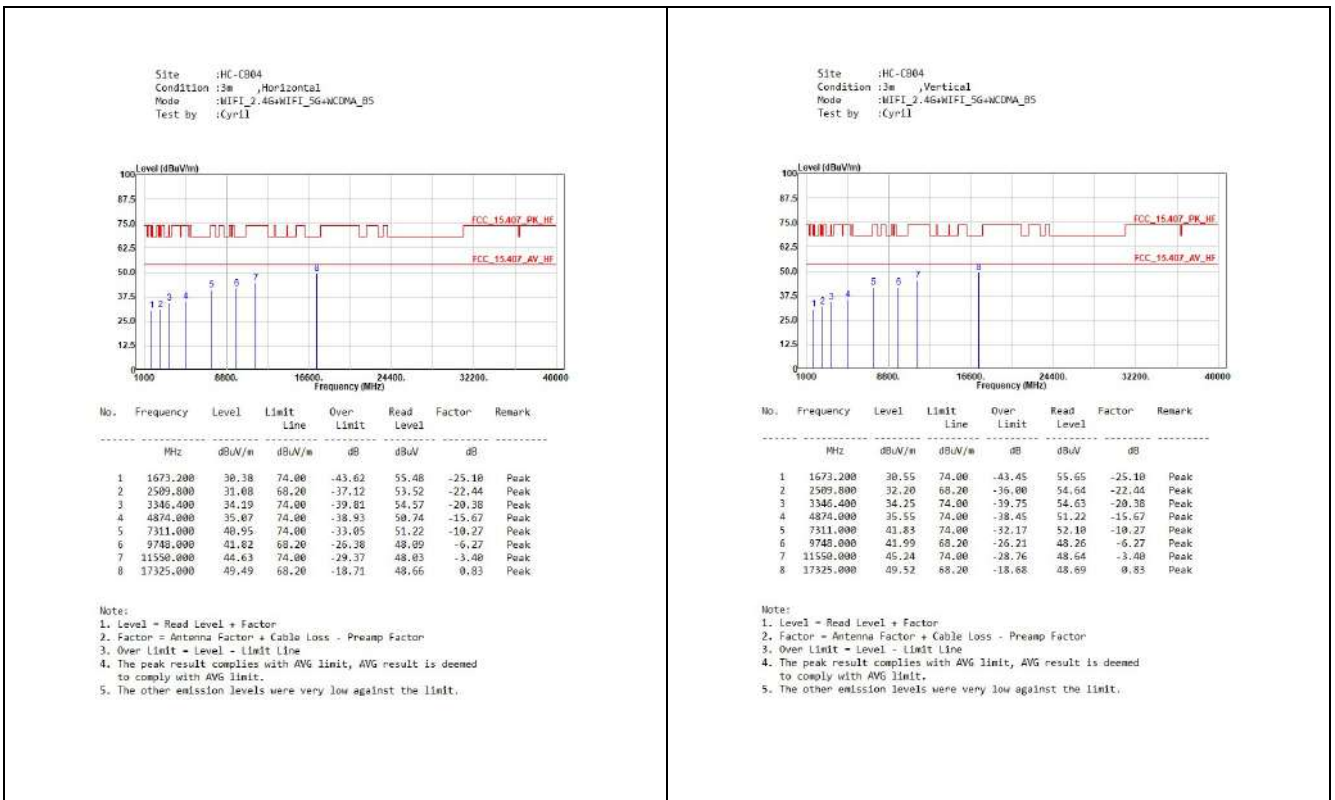
Mode 1: Transmit - power by adapter

1. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: WCDMA function

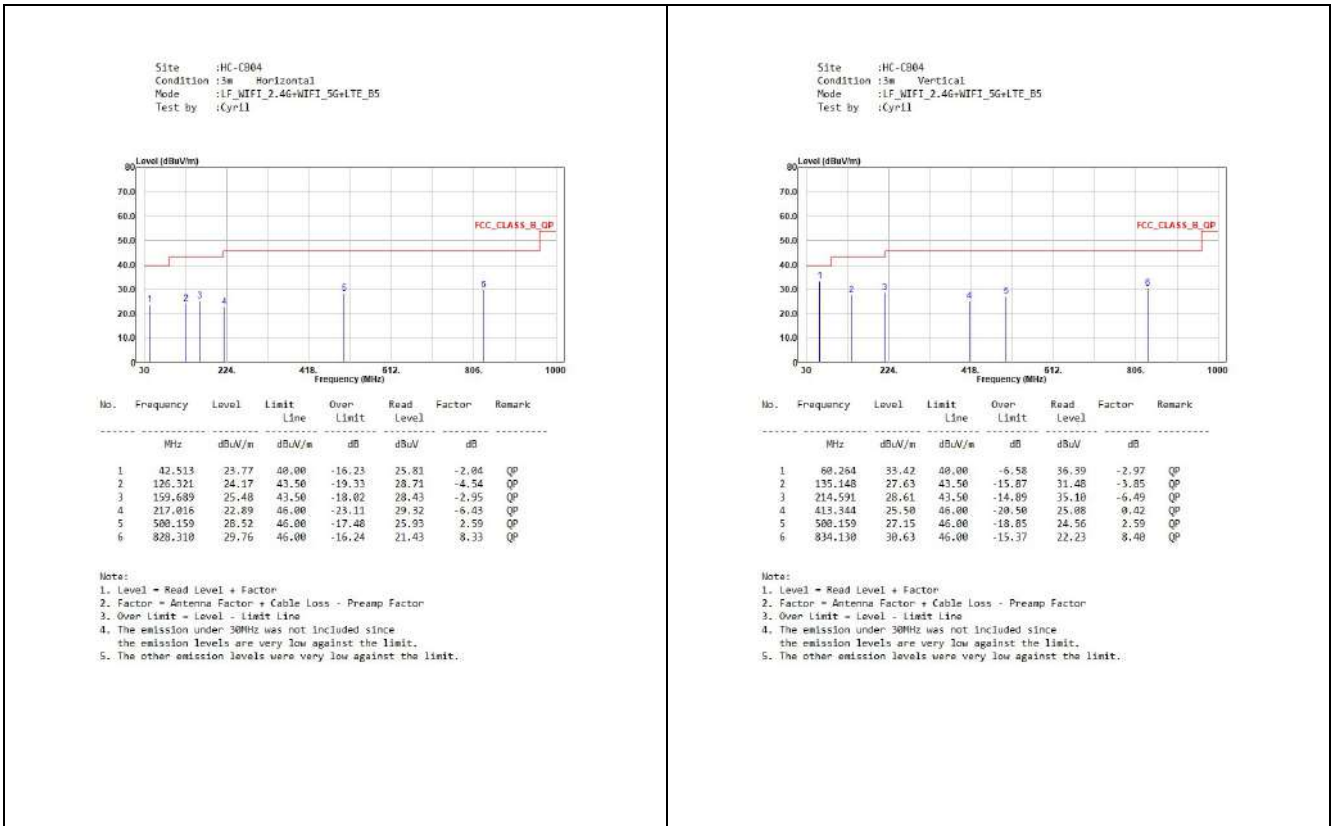
30 MHz ~ 1 GHz:



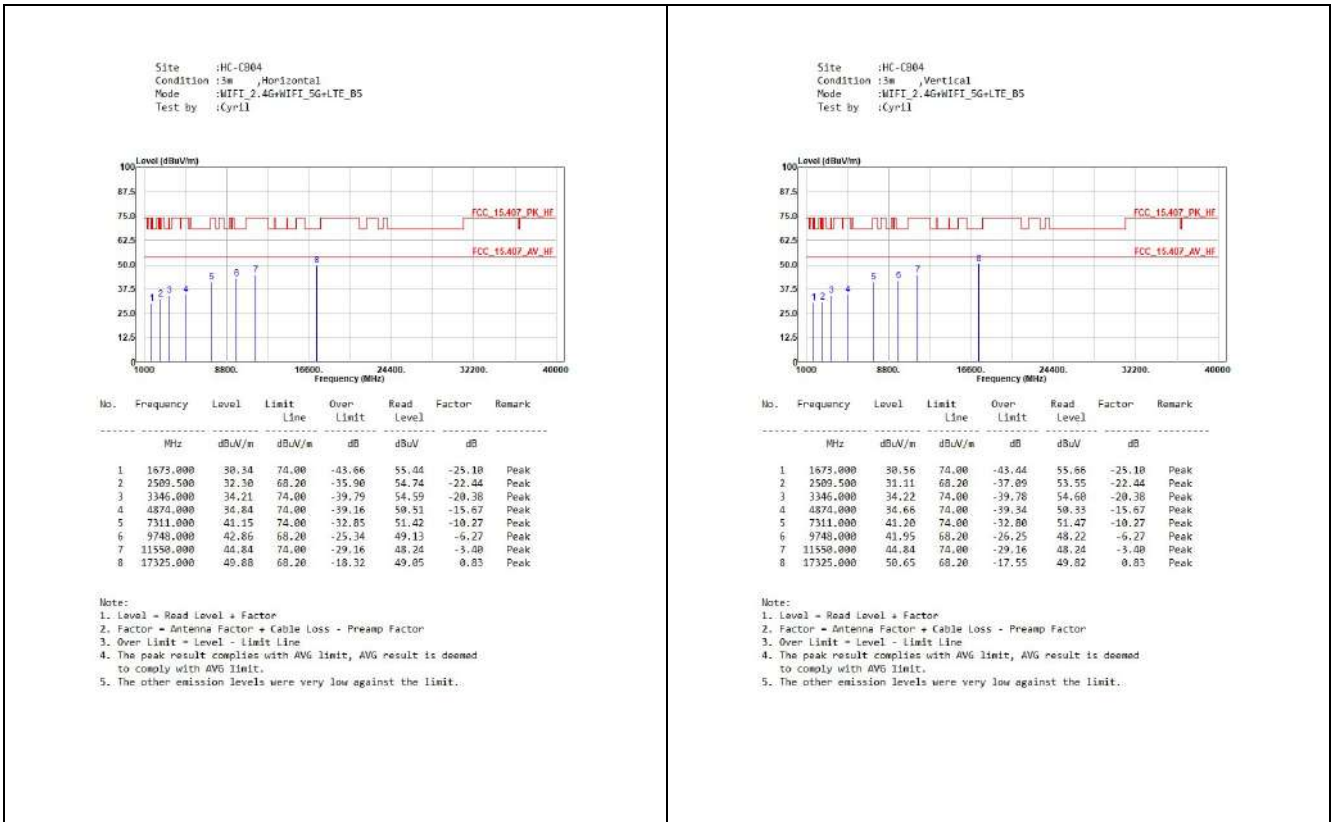
Above 1 GHz:



2. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: LTE function
30 MHz ~ 1 GHz:

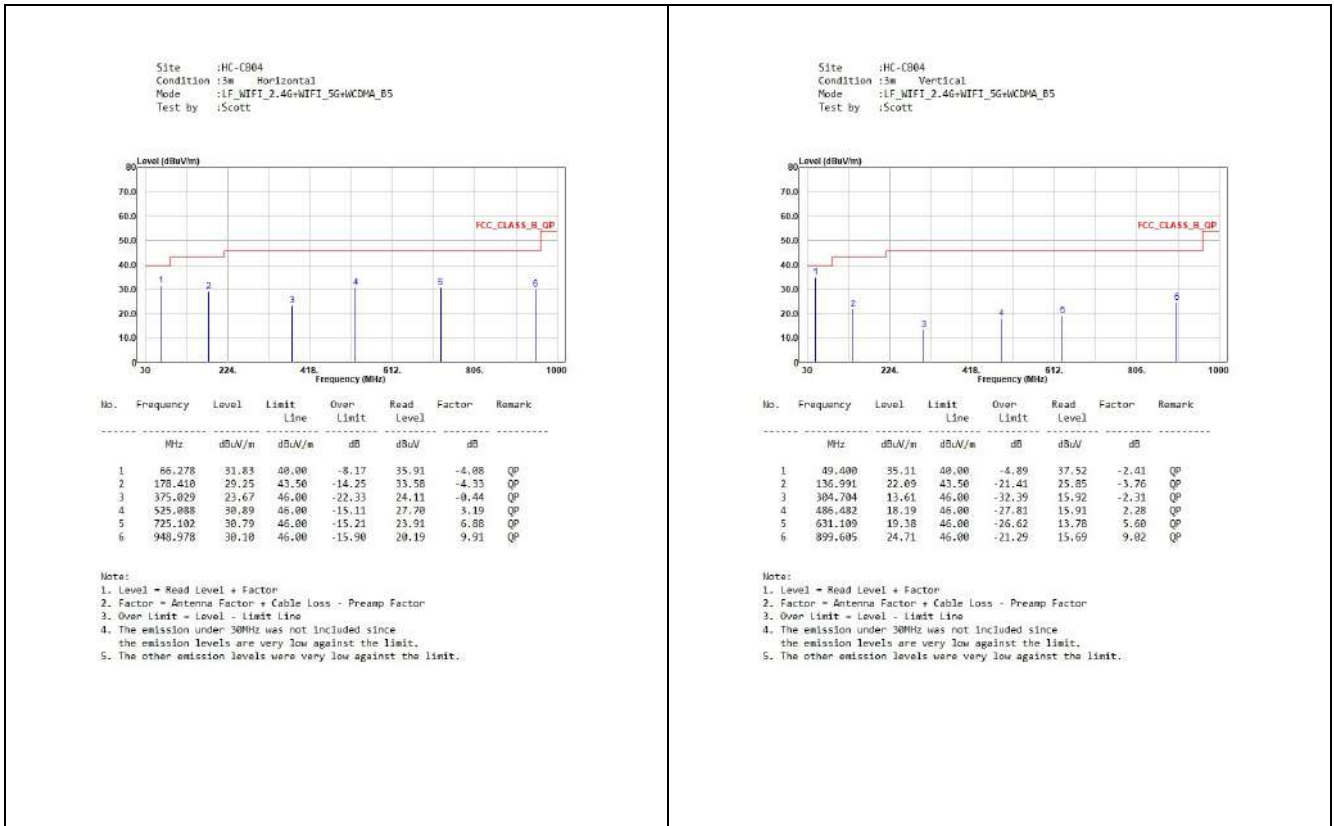


Above 1 GHz:

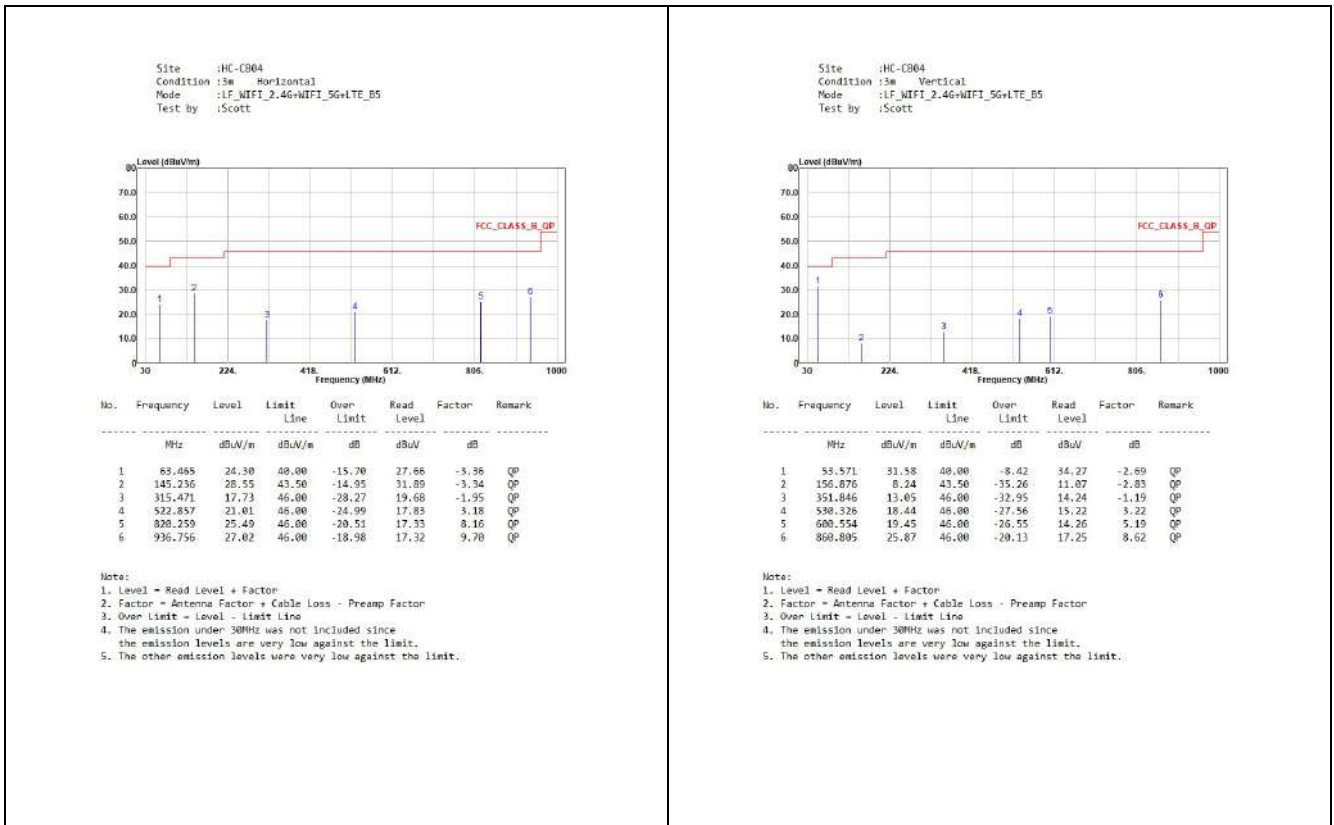


Mode 2: Transmit - power by 802.3at PoE

1. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: WCDMA function
 30 MHz ~ 1 GHz:



2. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: LTE function
30 MHz ~ 1 GHz:

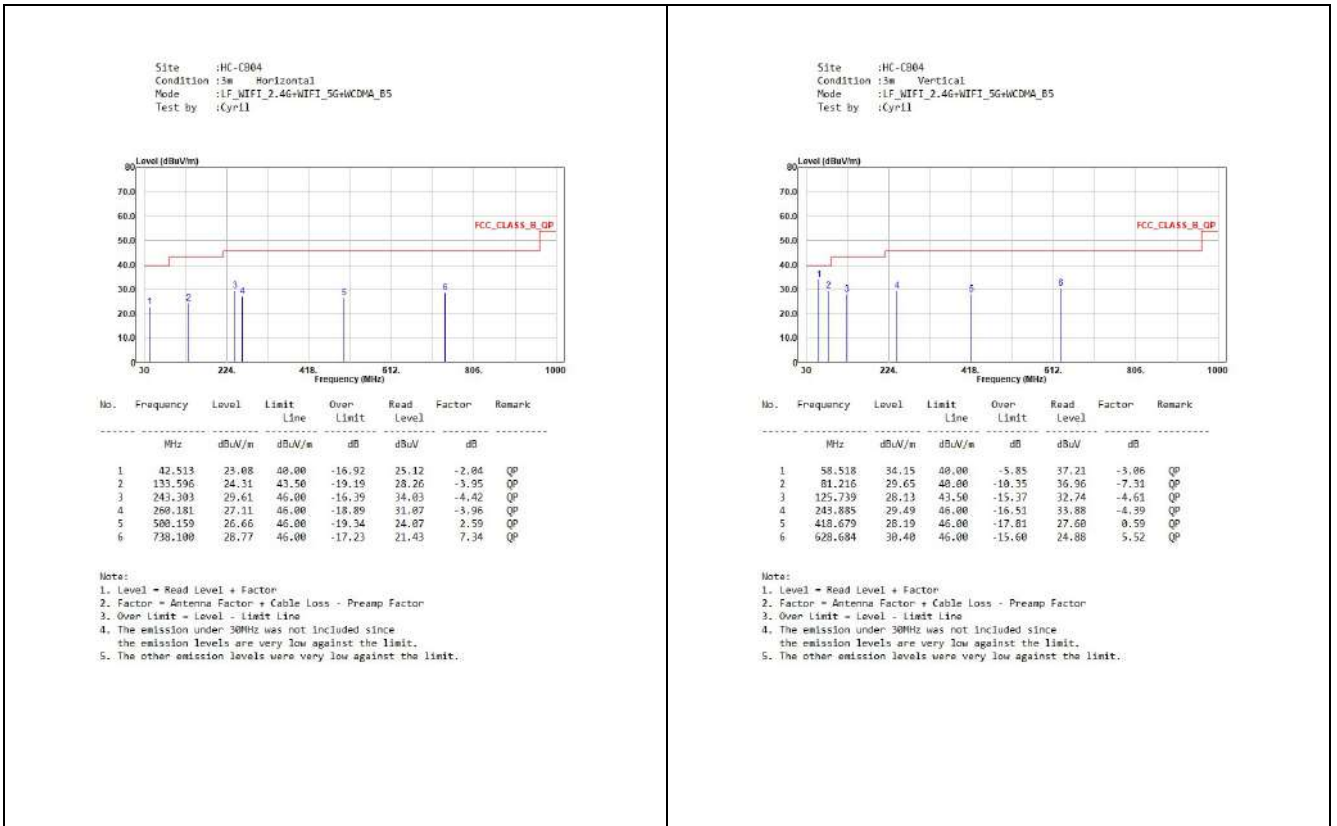


<For EUT 2>

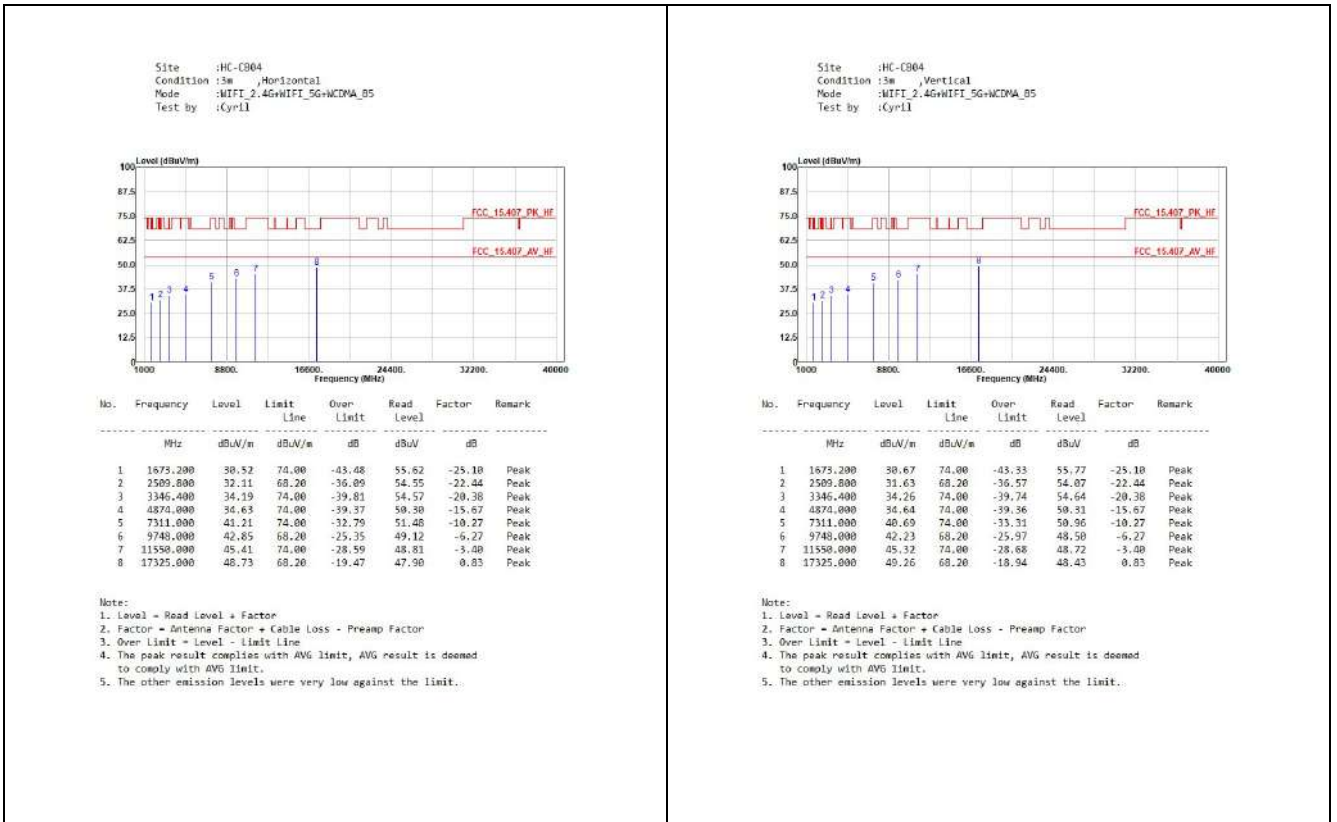
Mode 1: Transmit - power by adapter

1. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: WCDMA function

30 MHz ~ 1 GHz:

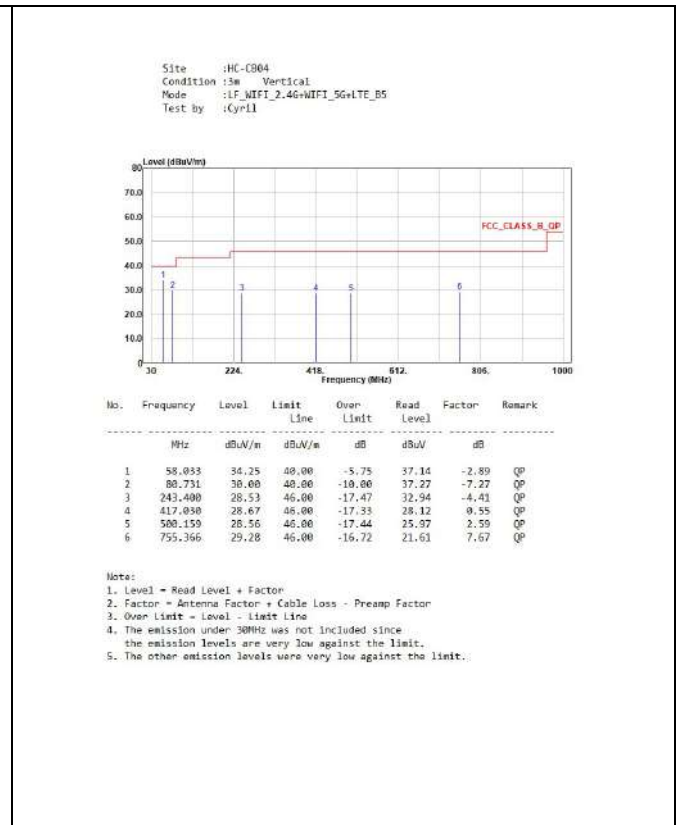
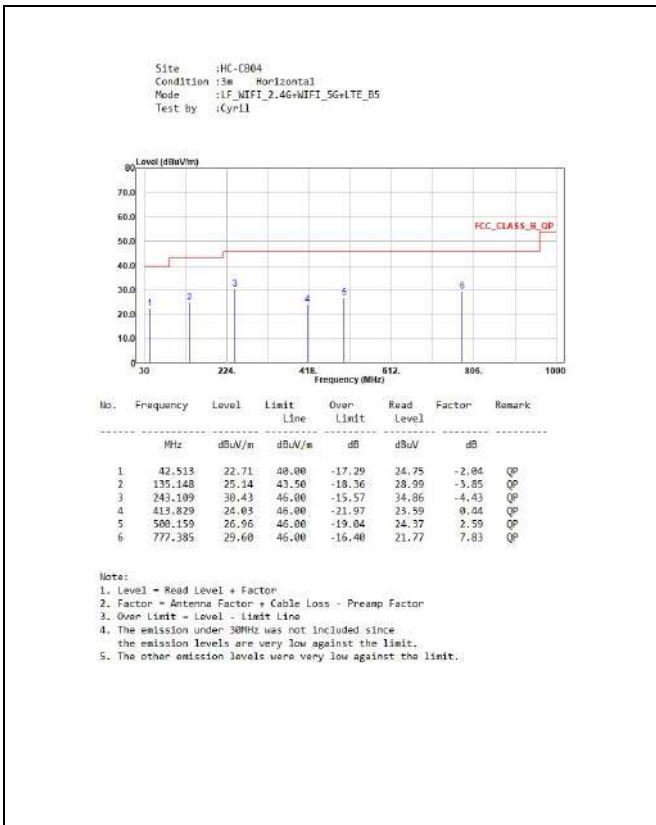


Above 1 GHz:

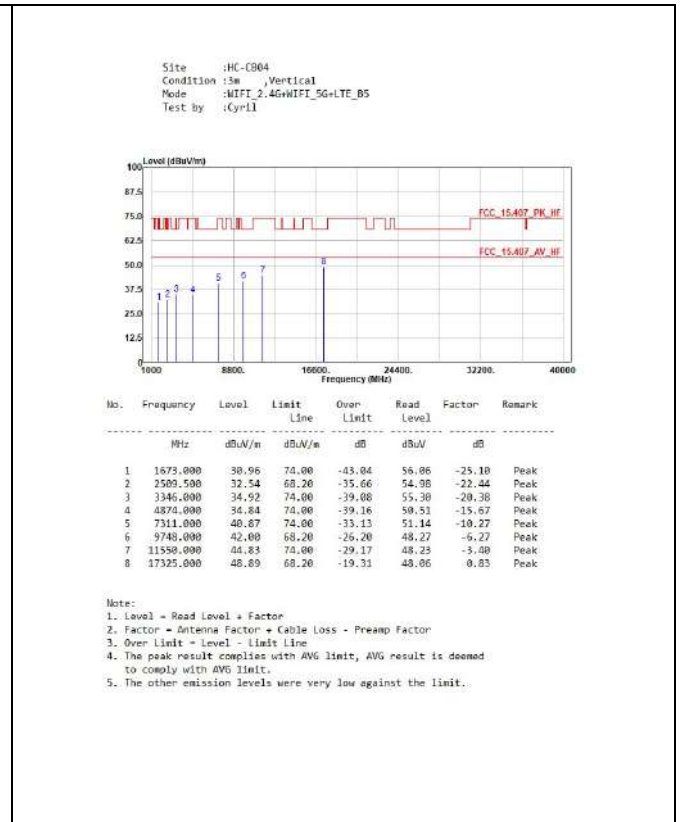
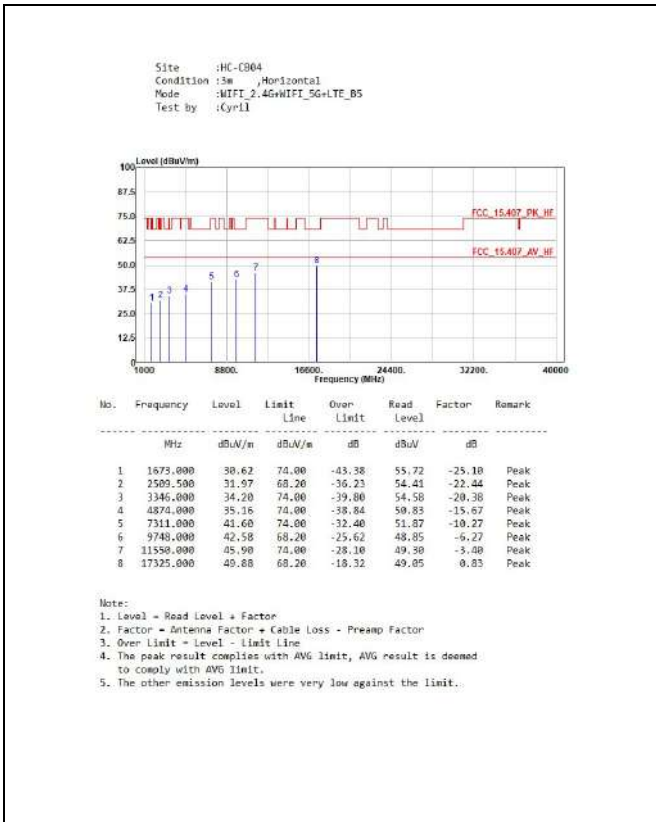


2. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: LTE function

30 MHz ~ 1 GHz:

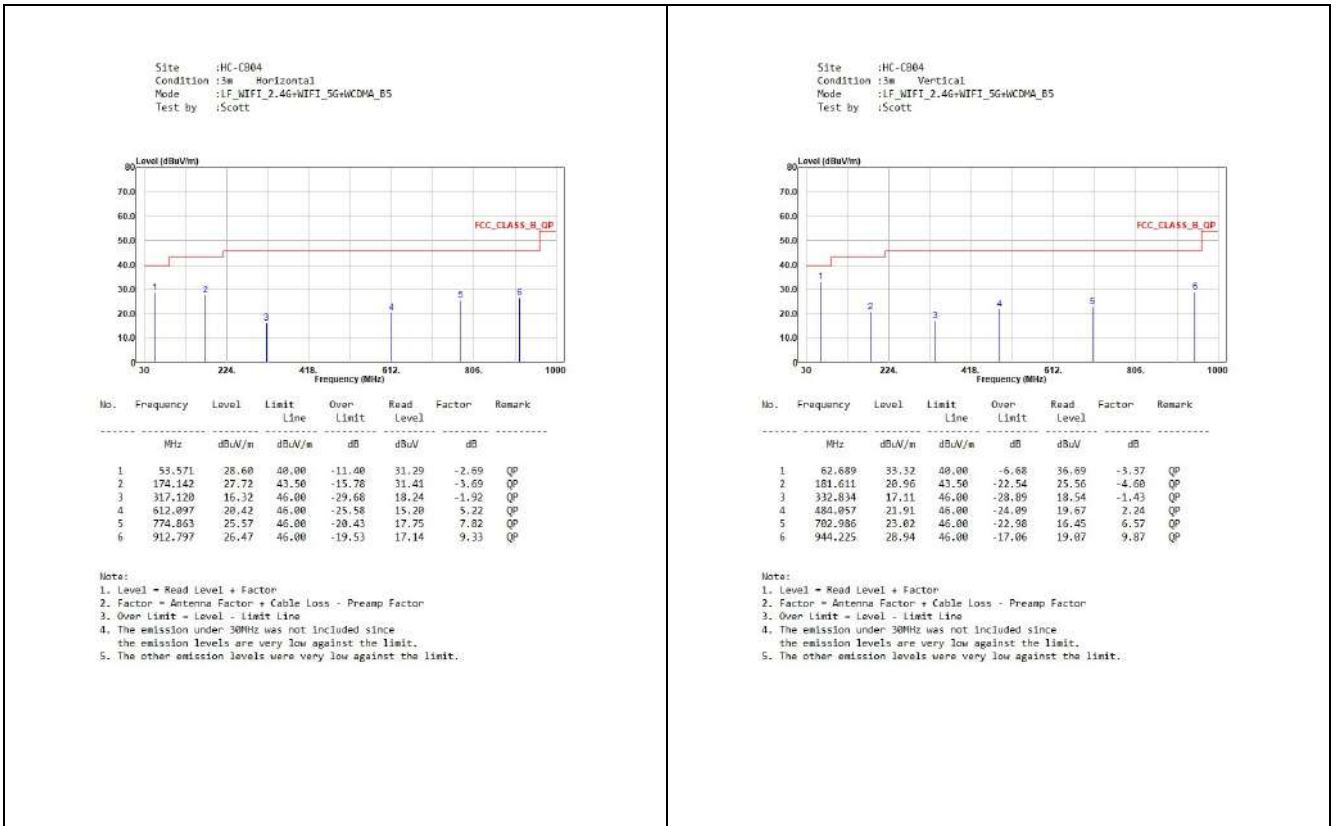


Above 1 GHz:



Mode 2: Transmit - power by 802.3at PoE

1. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: WCDMA function
 30 MHz ~ 1 GHz:



2. WiFi 2.4 GHz + WiFi 5 GHz + WWAN module: LTE function
30 MHz ~ 1 GHz:

