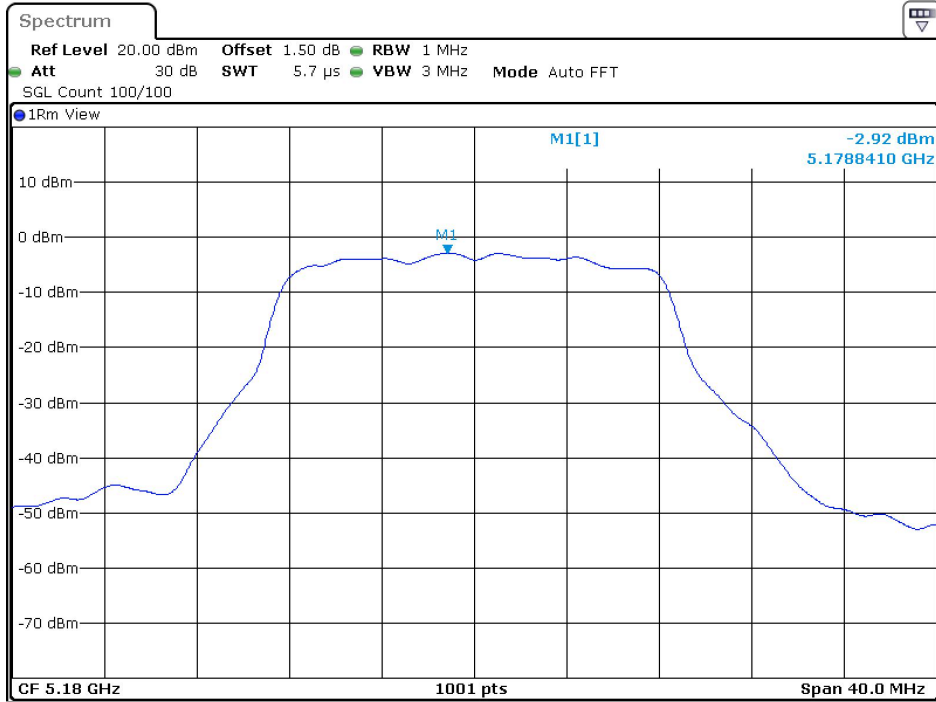
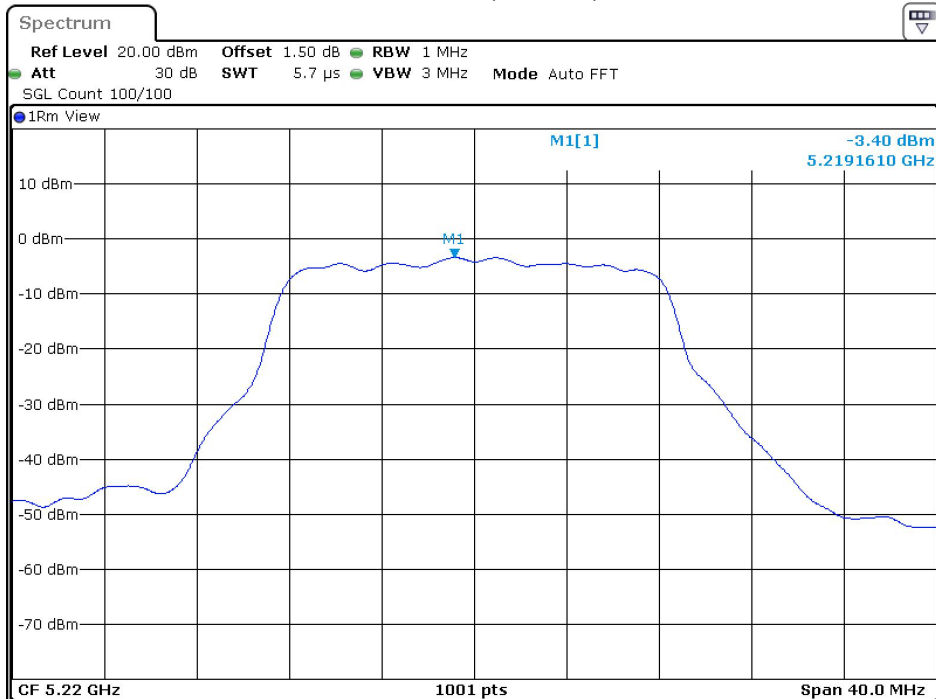


### Channel 36 (Chain A)



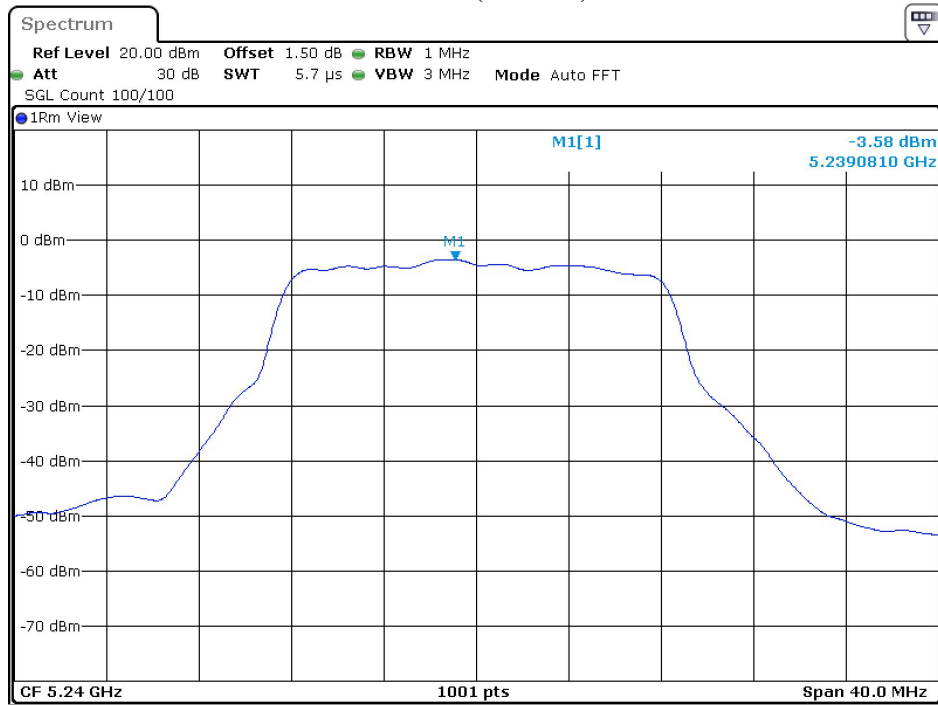
Date: 19.OCT.2023 19:08:19

### Channel 44 (Chain A)



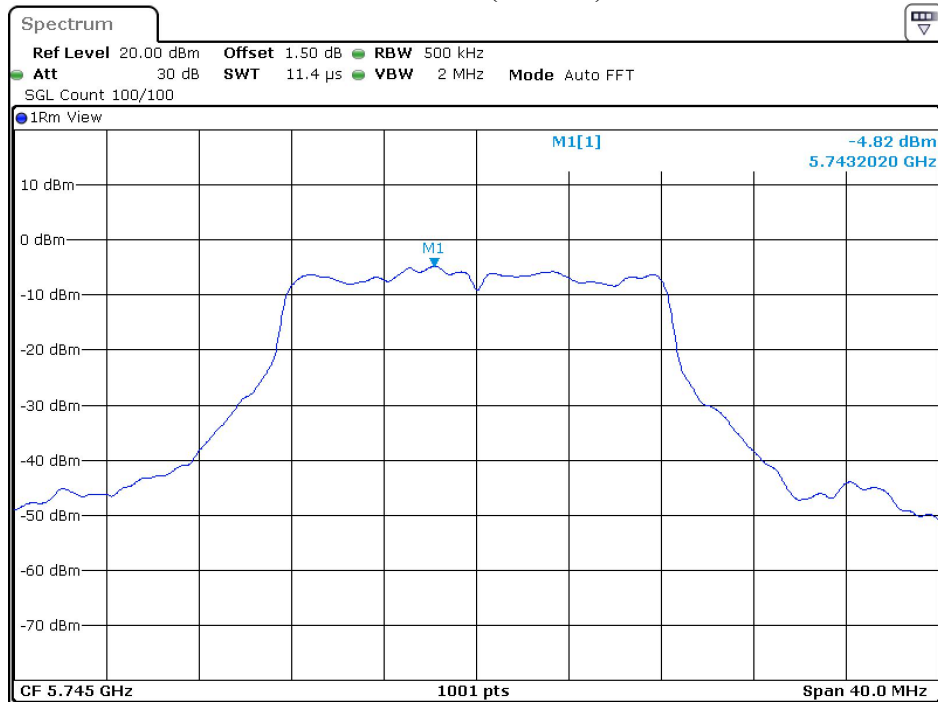
Date: 19.OCT.2023 19:09:21

### Channel 48 (Chain A)



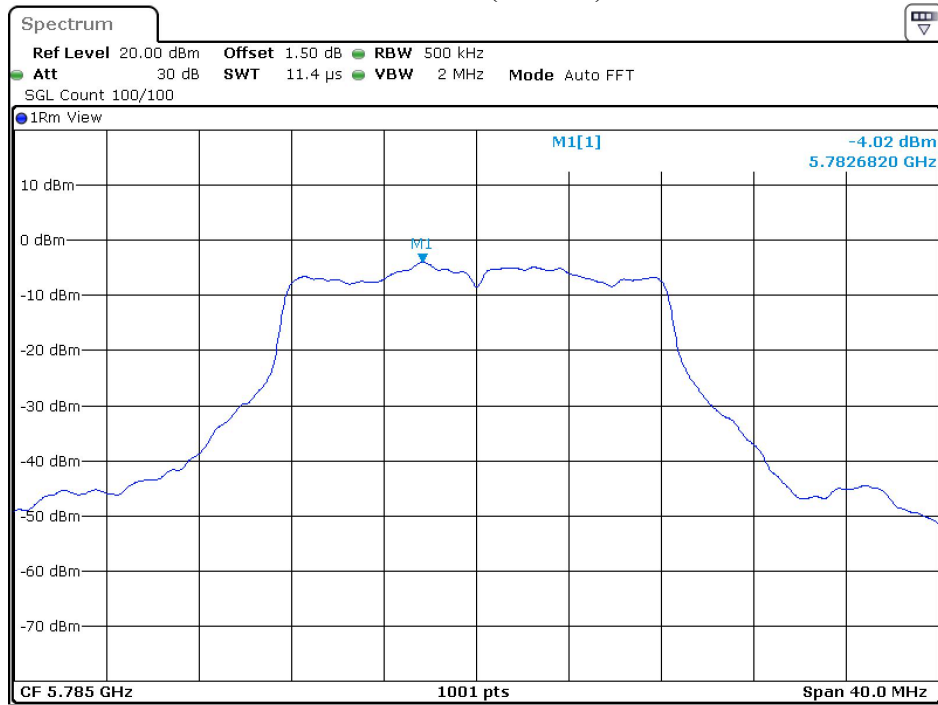
Date: 19.OCT.2023 19:09:57

### Channel 149 (Chain A)



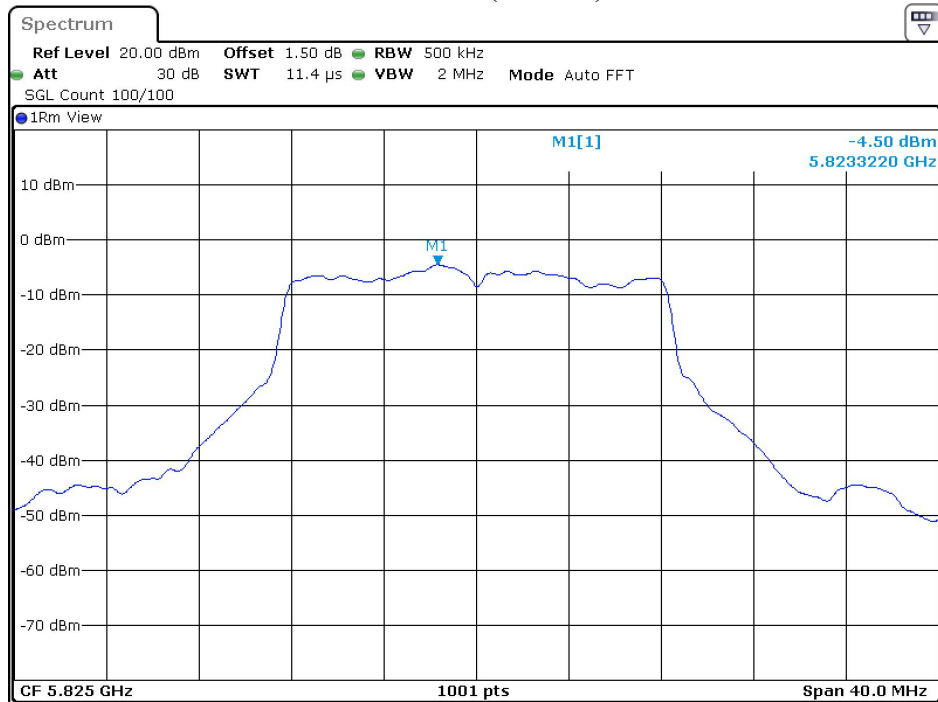
Date: 19.OCT.2023 19:17:35

### Channel 157 (Chain A)



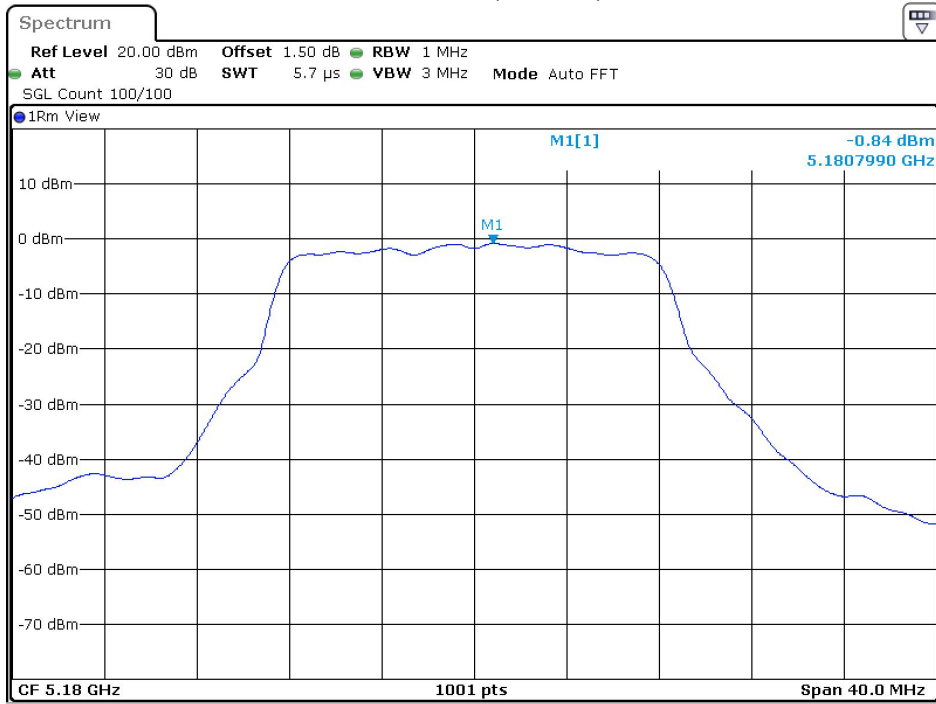
Date: 19.OCT.2023 19:18:24

### Channel 165 (Chain A)



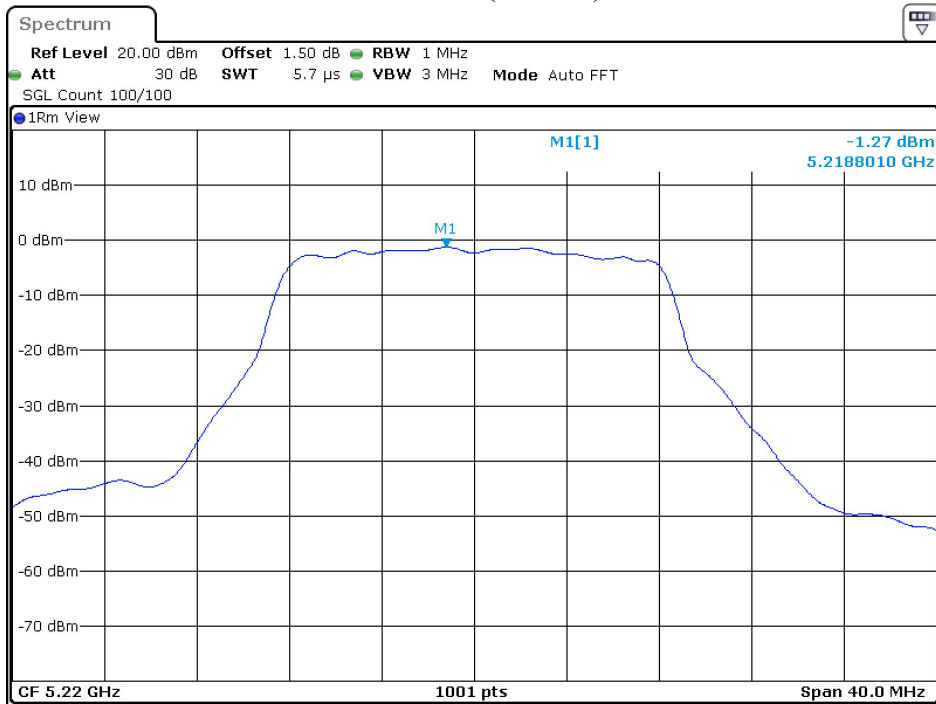
Date: 19.OCT.2023 19:19:41

### Channel 36 (Chain B)



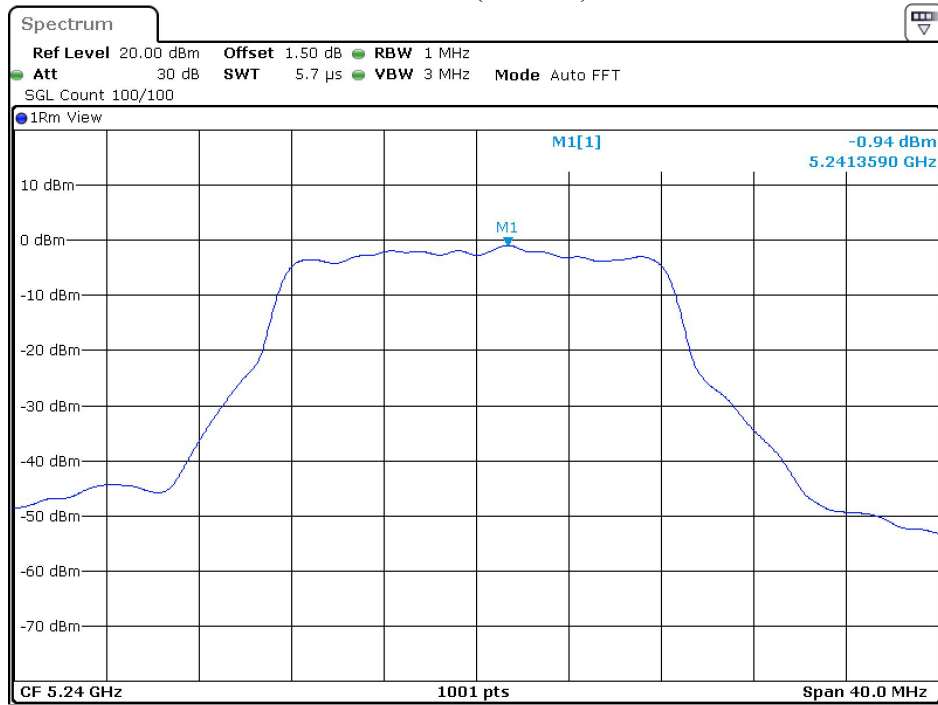
Date: 19.OCT.2023 22:22:30

### Channel 44 (Chain B)



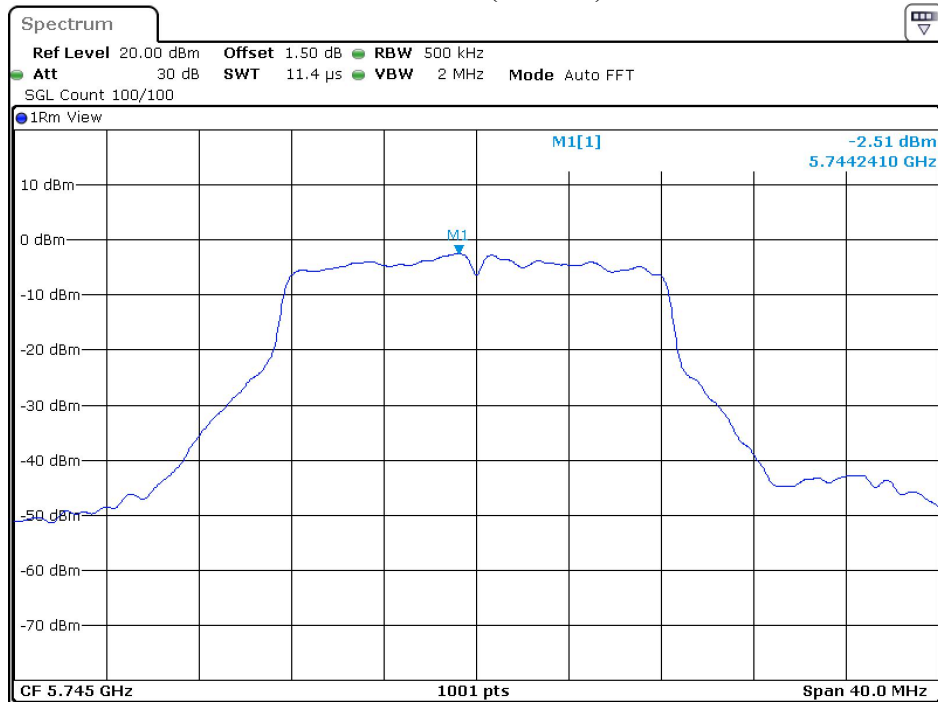
Date: 19.OCT.2023 22:23:13

### Channel 48 (Chain B)



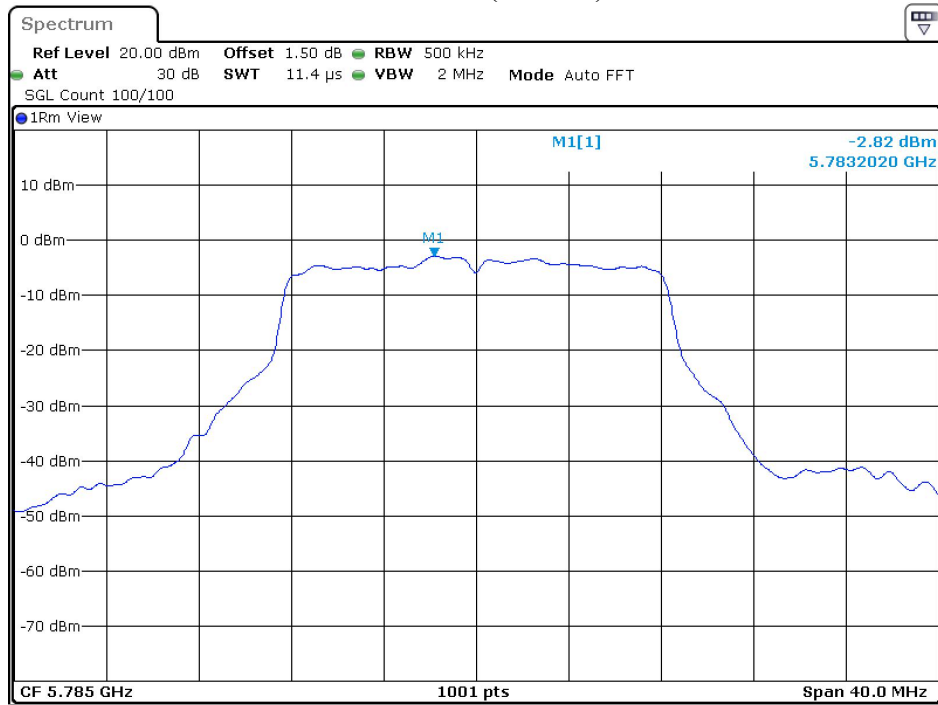
Date: 19.OCT.2023 22:24:33

### Channel 149 (Chain B)



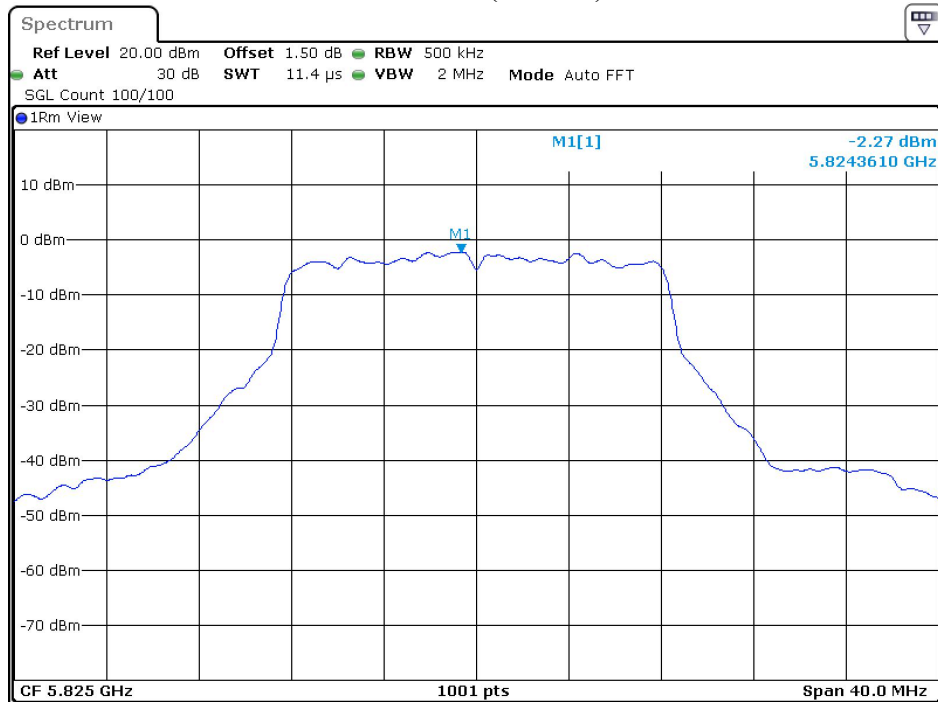
Date: 19.OCT.2023 22:32:34

### Channel 157 (Chain B)



Date: 19.OCT.2023 22:33:22

### Channel 165 (Chain B)



Date: 19.OCT.2023 22:34:10

Product : Multimedia device with Bluetooth and WLAN  
 Test Item : Peak Power Spectral Density  
 Test Mode : Transmit (802.11ac-20 MHz) - NA1  
 Test Date : 2023/10/19  
 Test Sample : ID 02

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Required Limit (dBm)	Result
36	5180	6	A	-3.45	0.17	0.45	<9.87	Pass
			B	-2.11				Pass
44	5220	6	A	-4.78	0.17	0.26	<9.87	Pass
			B	-1.63				Pass
48	5240	6	A	-5.28	0.17	-0.04	<9.87	Pass
			B	-1.83				Pass

Note:

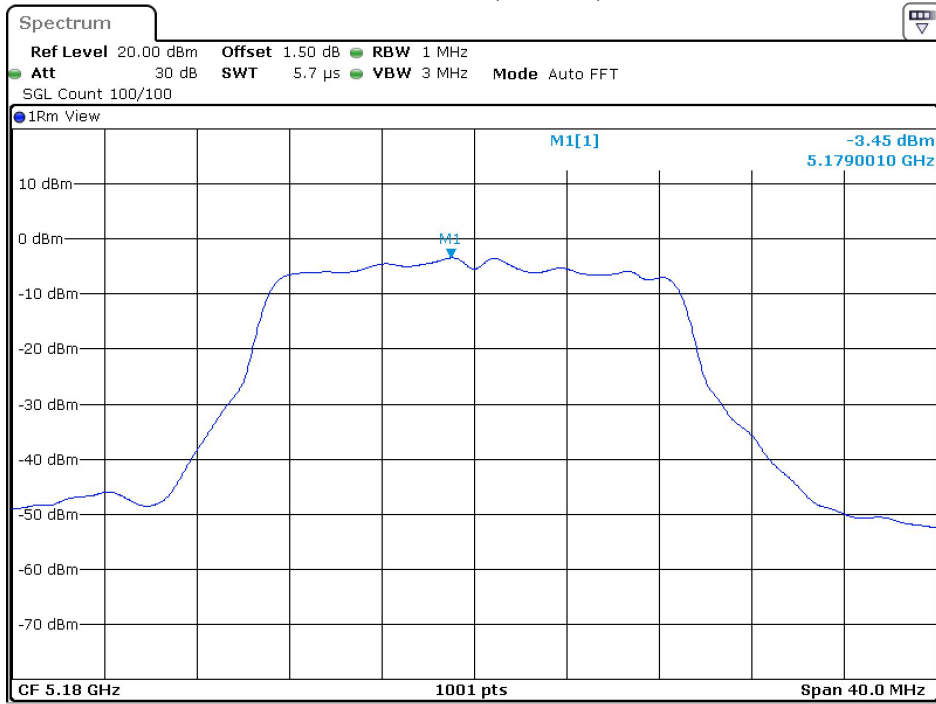
- Total PPSD/MHz =  $10 \cdot \log(\text{Chain A (mW)} + \text{Chain B (mW)} + \text{Duty factor})$ .

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD (dBm)	Duty factor (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	6	A	-6.97	0.17	-1.86	<28.32	Pass
			B	-3.71				Pass
157	5785	6	A	-6.38	0.17	-1.50	<28.32	Pass
			B	-3.47				Pass
165	5825	6	A	-6.04	0.17	-0.76	<28.32	Pass
			B	-2.53				Pass

Note:

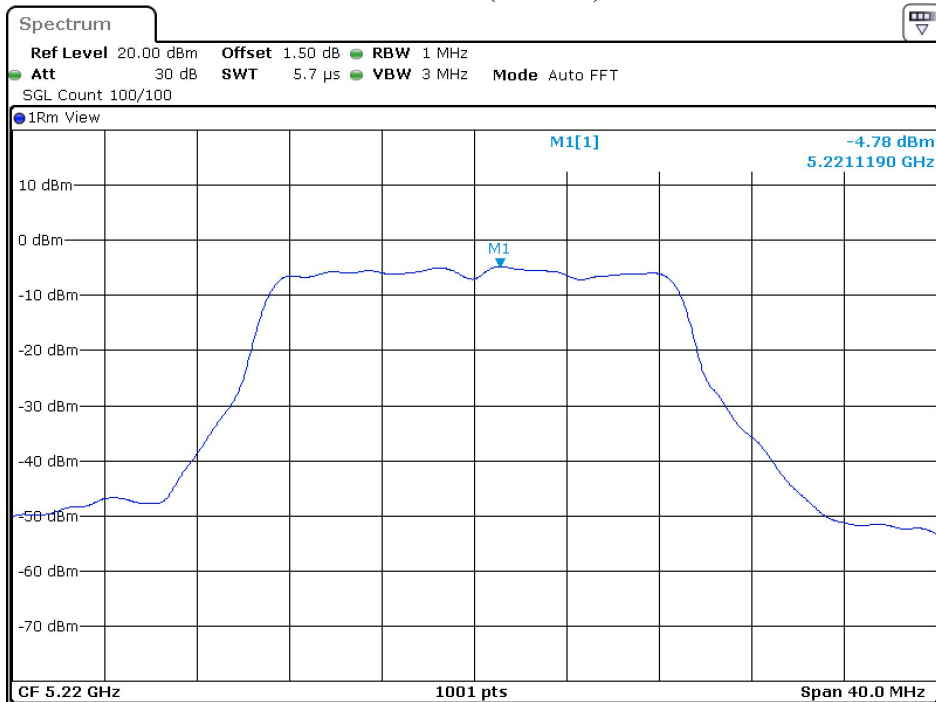
- Total PPSD =  $10 \cdot \log(\text{Chain A (mW)} + \text{Chain B (mW)} + \text{Duty factor})$ .

### Channel 36 (Chain A)



Date: 19.OCT.2023 19:20:41

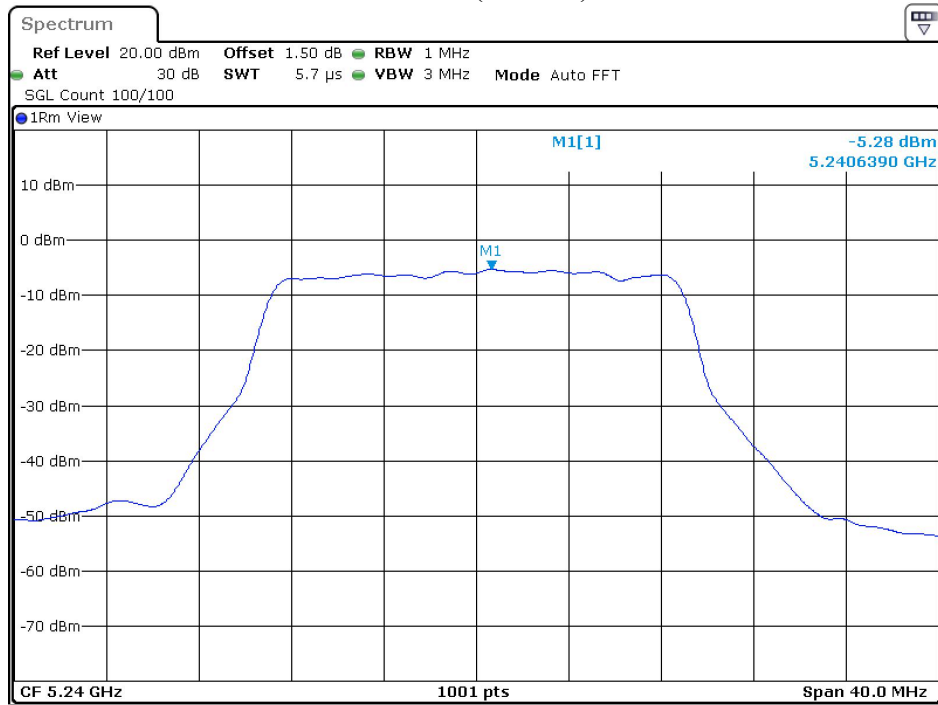
### Channel 44 (Chain A)



Date: 19.OCT.2023 19:21:13

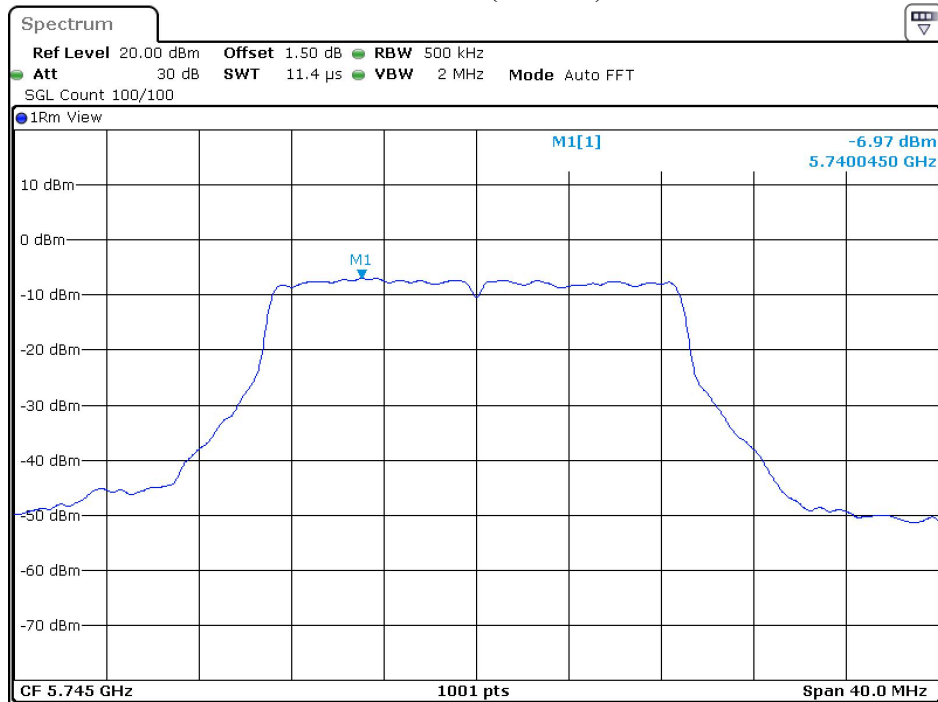


### Channel 48 (Chain A)



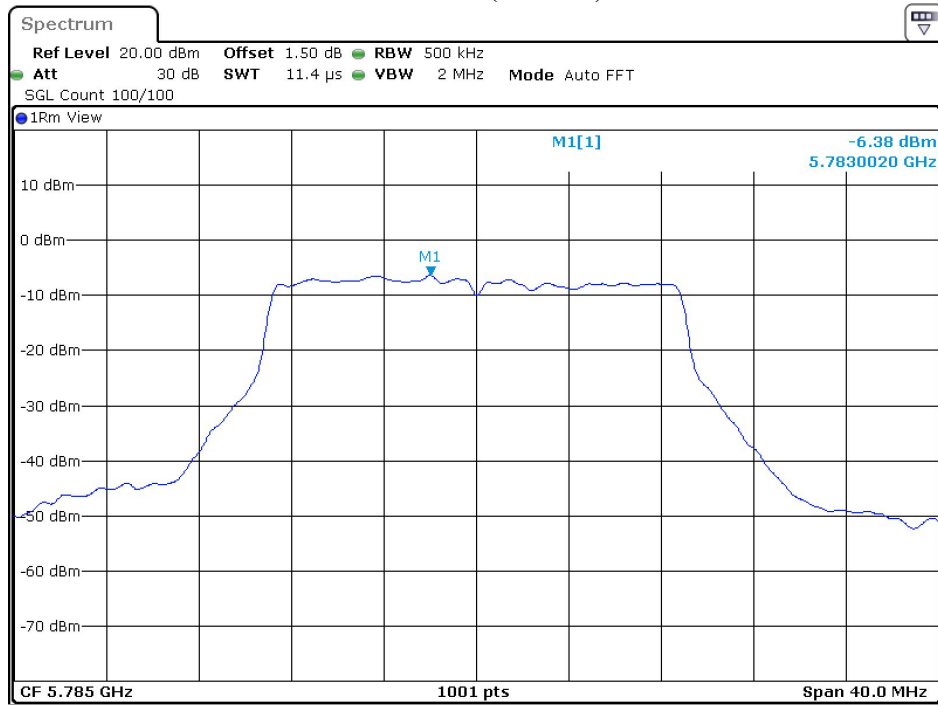
Date: 19.OCT.2023 19:21:44

### Channel 149 (Chain A)



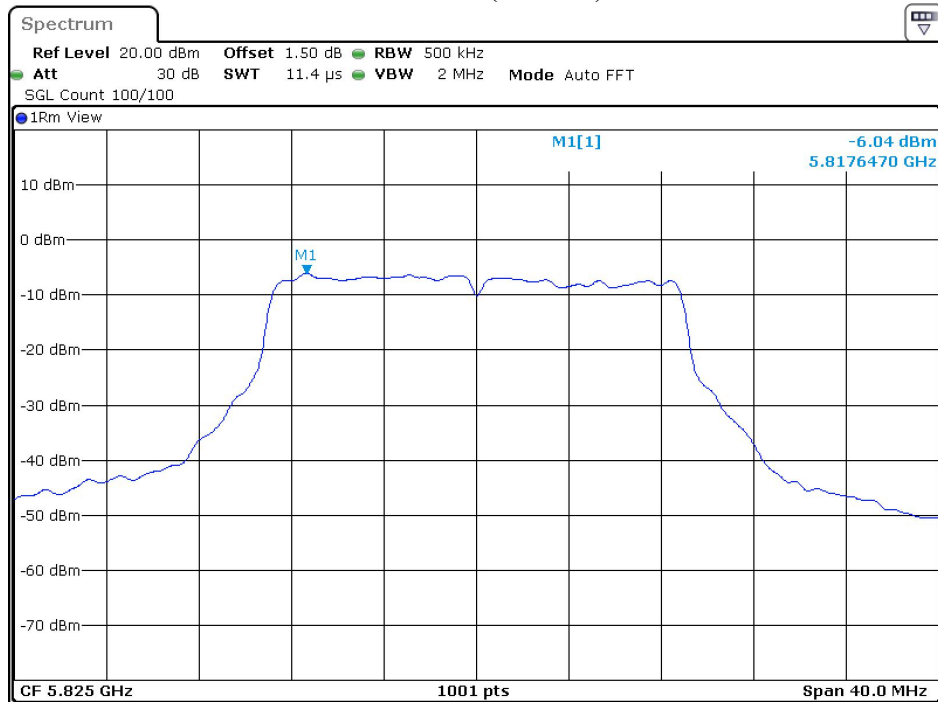
Date: 19.OCT.2023 19:31:07

### Channel 157 (Chain A)



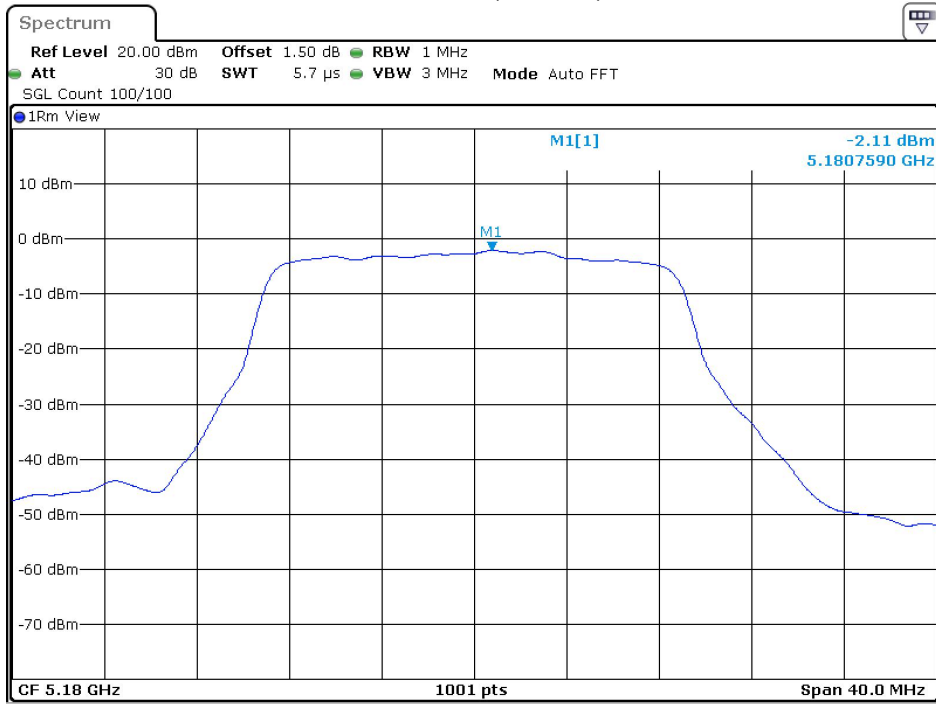
Date: 19.OCT.2023 19:32:33

### Channel 165 (Chain A)



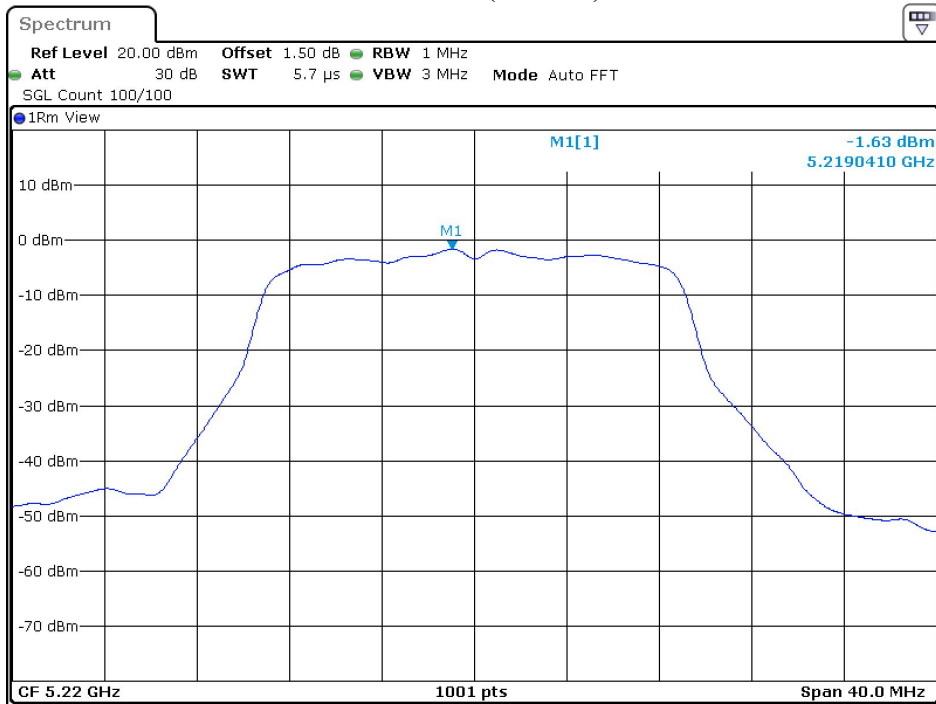
Date: 19.OCT.2023 19:33:30

### Channel 36 (Chain B)



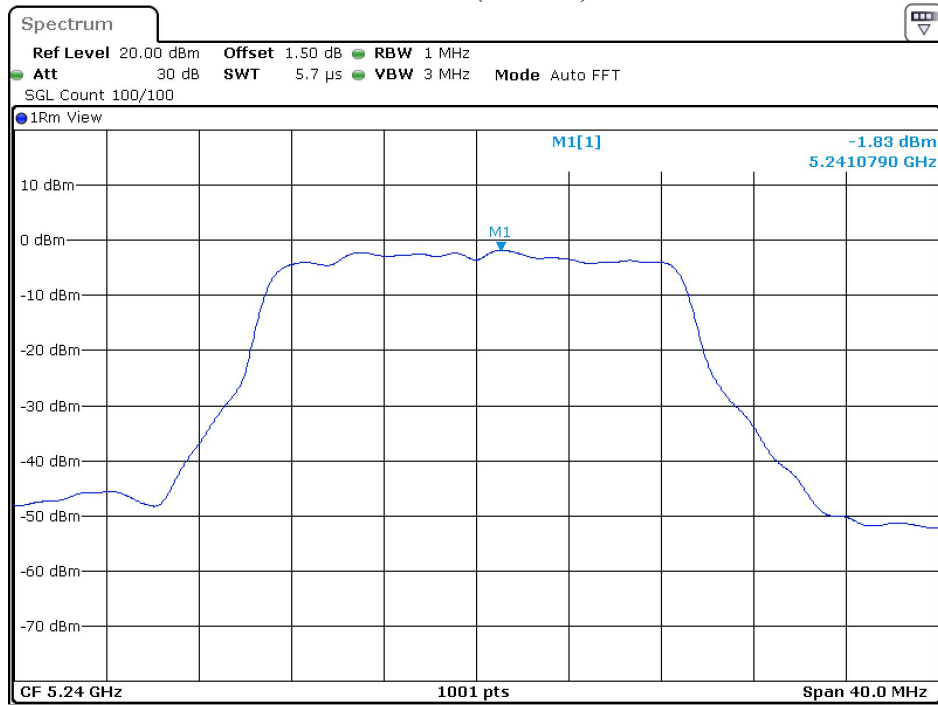
Date: 19.OCT.2023 22:10:44

### Channel 44 (Chain B)



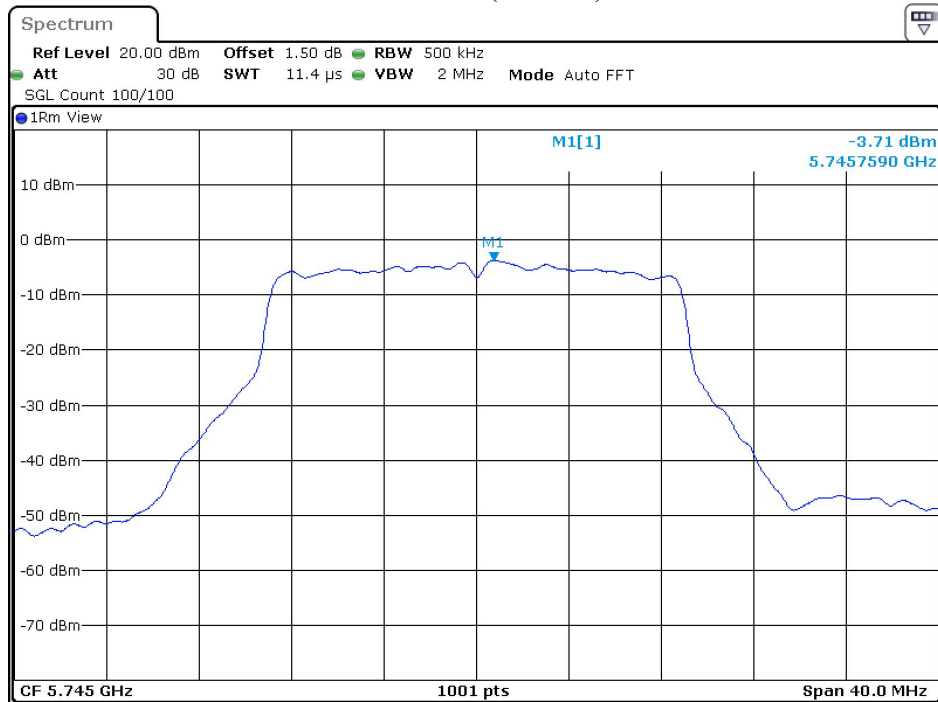
Date: 19.OCT.2023 22:11:26

### Channel 48 (Chain B)



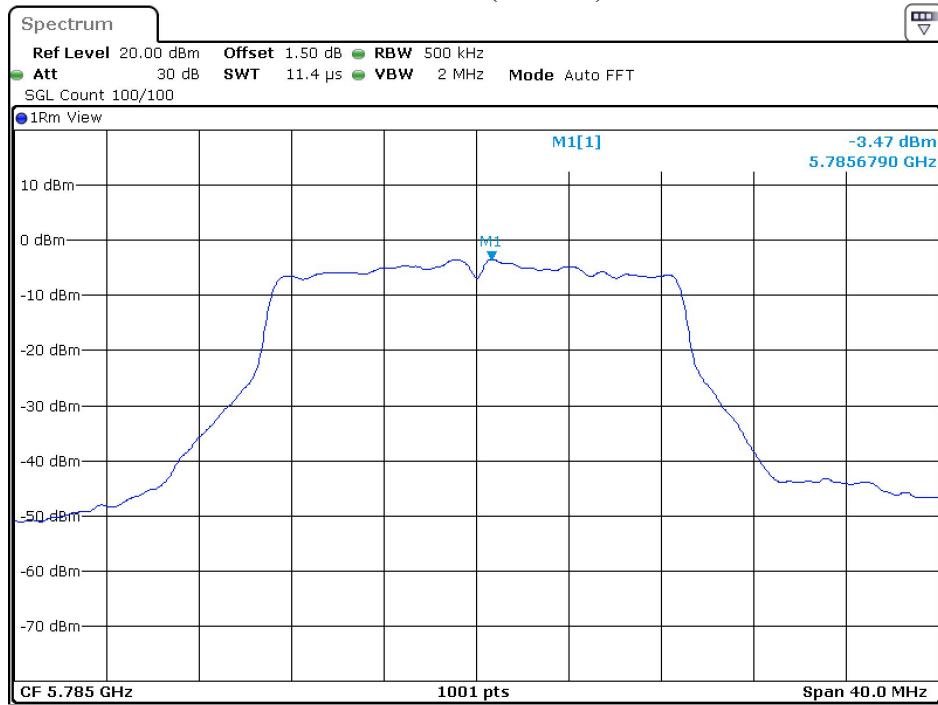
Date: 19.OCT.2023 22:12:03

### Channel 149 (Chain B)



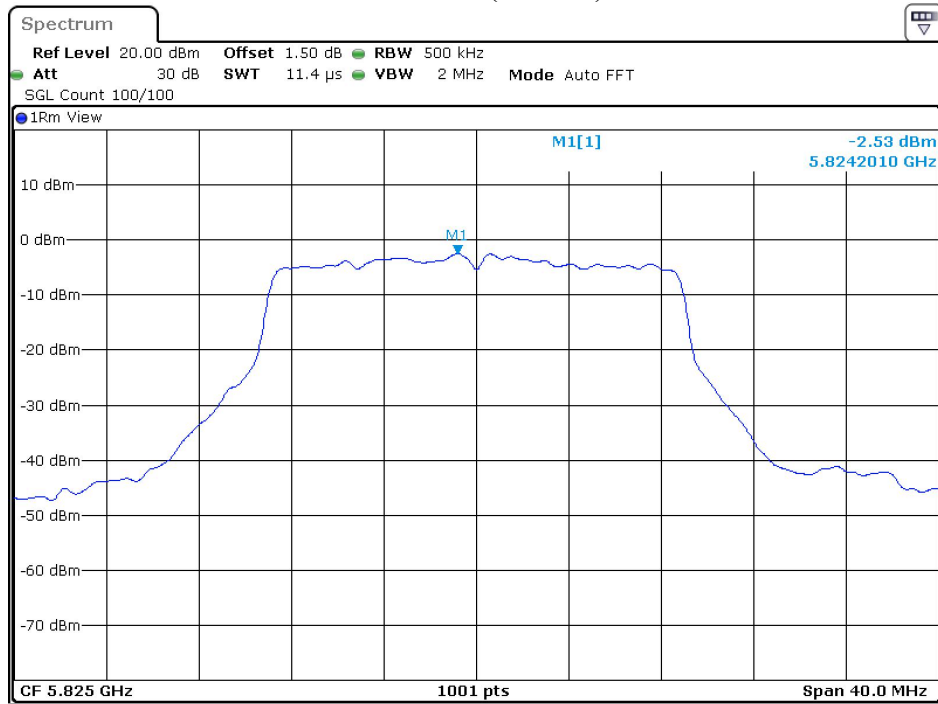
Date: 19.OCT.2023 22:19:27

### Channel 157 (Chain B)



Date: 19.OCT.2023 22:20:16

### Channel 165 (Chain B)



Date: 19.OCT.2023 22:21:14

Product : Multimedia device with Bluetooth and WLAN  
 Test Item : Peak Power Spectral Density  
 Test Mode : Transmit (802.11ac-40 MHz) - NA1  
 Test Date : 2023/10/19  
 Test Sample : ID 02

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Required Limit (dBm)	Result
38	5190	MCS0	A	-6.94	0.32	-2.77	<9.87	Pass
			B	-5.40				Pass
46	5230	MCS0	A	-7.14	0.32	-2.38	<9.87	Pass
			B	-4.64				Pass

Note:

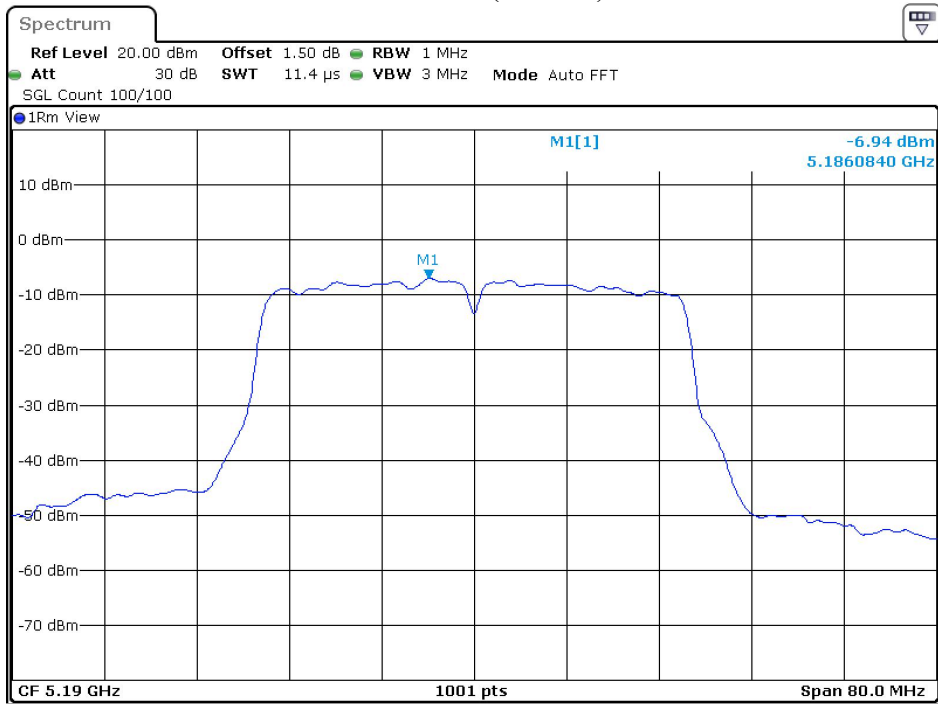
- Total PPSD/MHz = PPSD/MHz + 10\*log 2 (two antennas)+Duty factor.

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD (dBm)	Duty factor (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
151	5755	MCS0	A	-8.92	0.32	-4.27	<28.32	Pass
			B	-6.59				Pass
159	5795	MCS0	A	-8.48	0.32	-4.02	<28.32	Pass
			B	-6.46				Pass

Note:

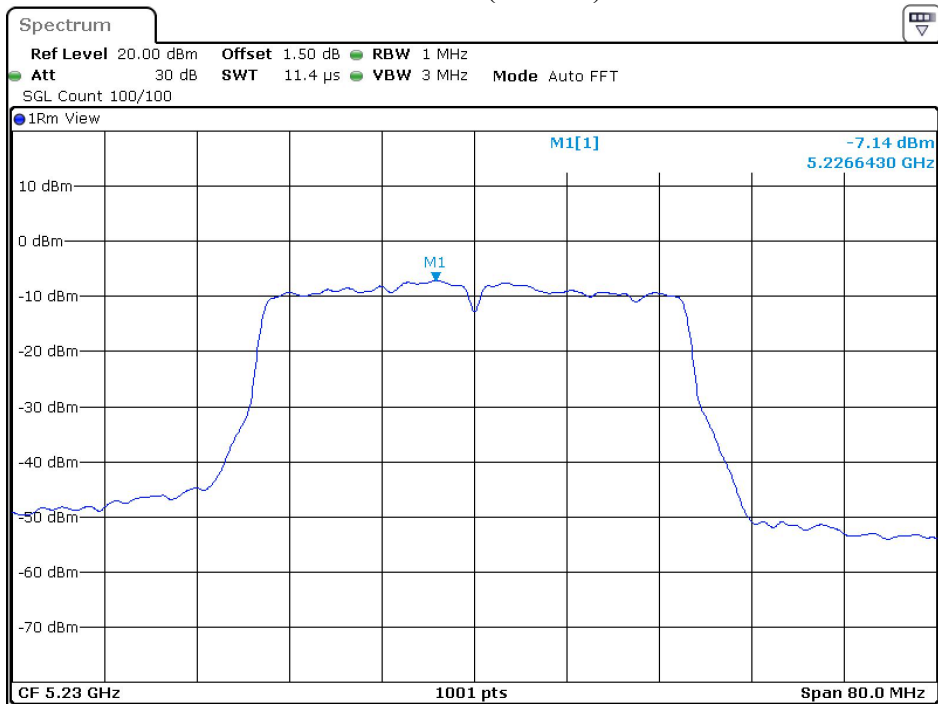
- Total PPSD = 10\*log (Chain A (mW) + Chain B (mW) + Duty factor).

### Channel 38 (Chain A)



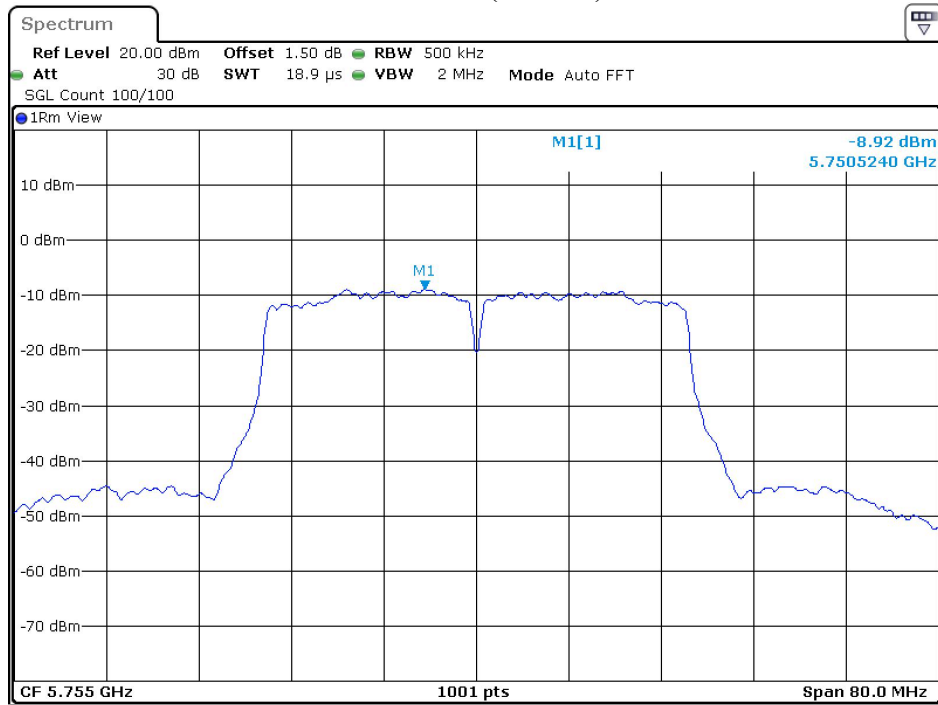
Date: 19.OCT.2023 19:34:59

### Channel 46 (Chain A)



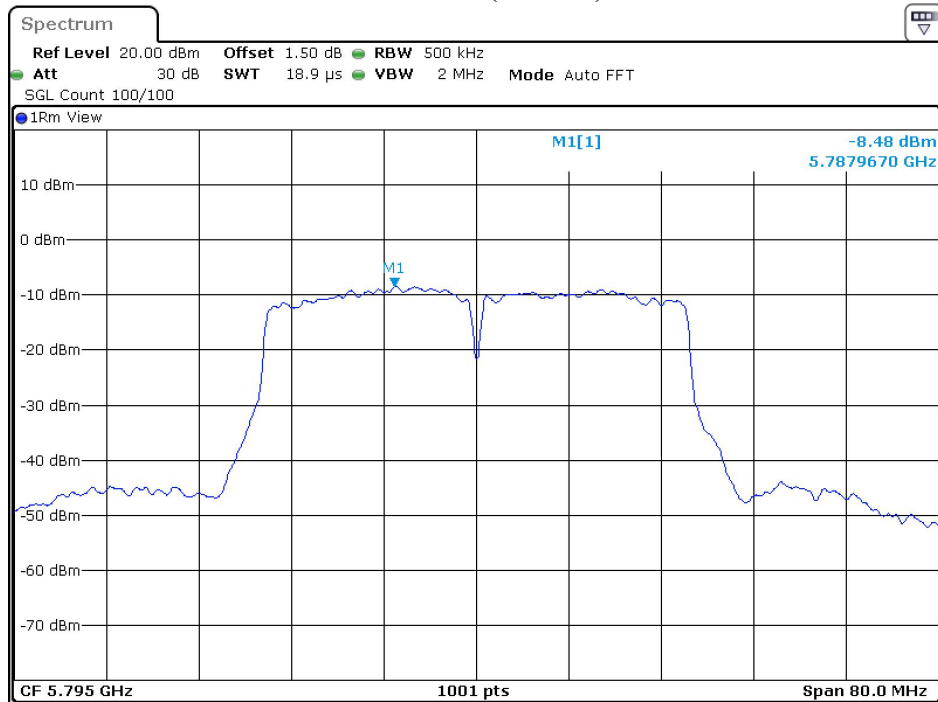
Date: 19.OCT.2023 19:35:28

### Channel 151 (Chain A)



Date: 19.OCT.2023 19:44:26

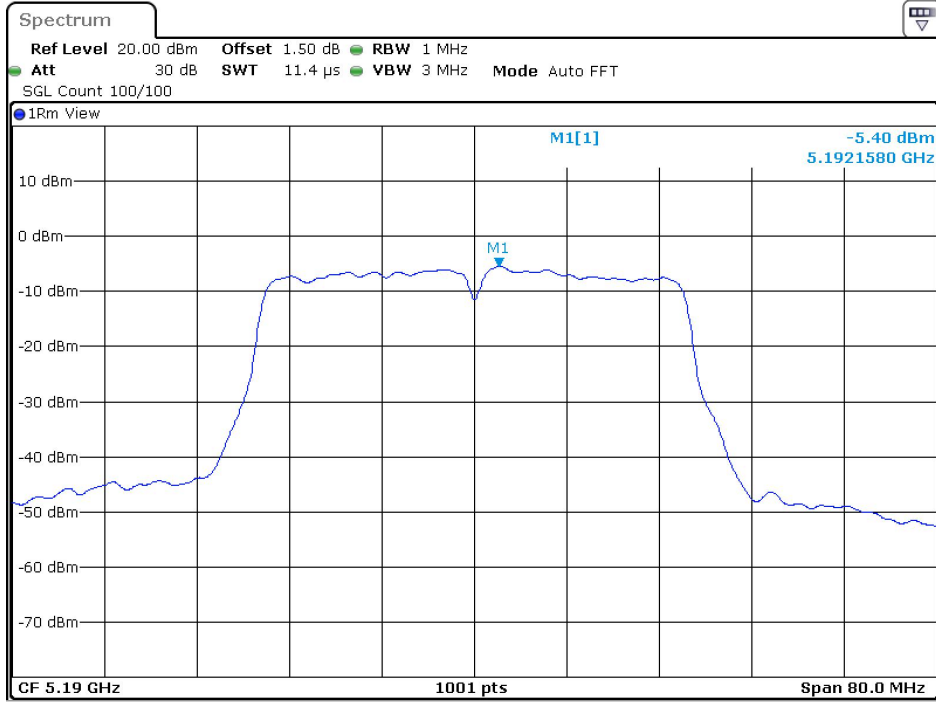
### Channel 159 (Chain A)



Date: 19.OCT.2023 19:45:43

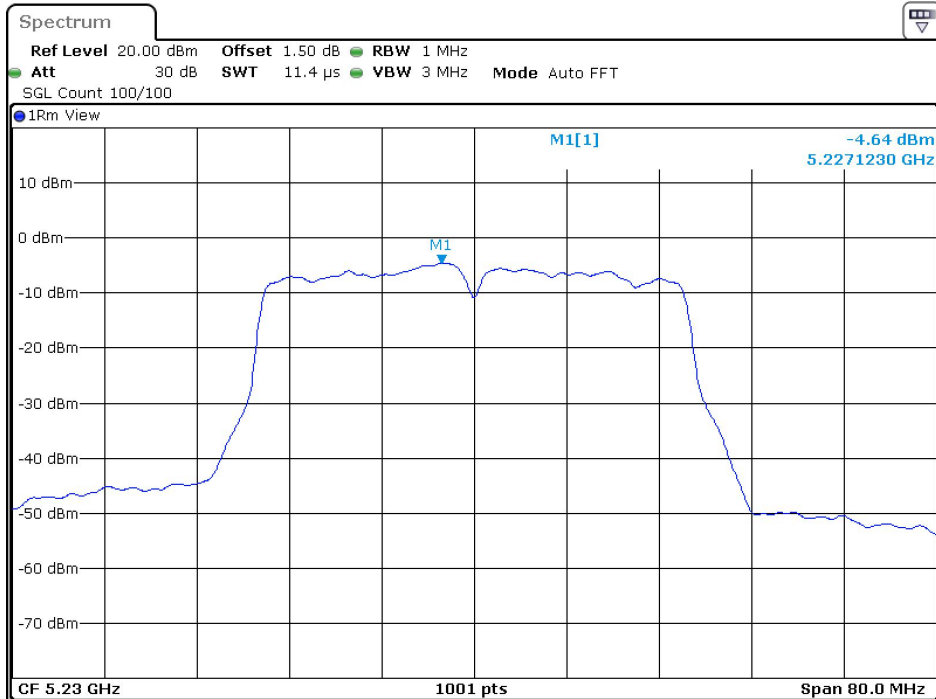


### Channel 38 (Chain B)



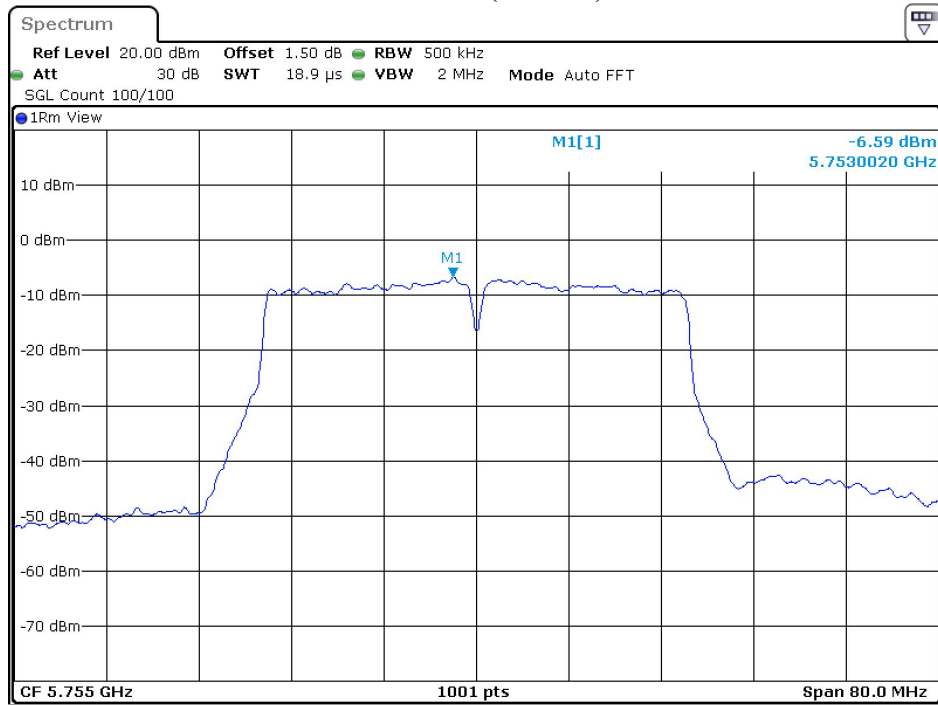
Date: 19.OCT.2023 21:55:12

### Channel 46 (Chain B)



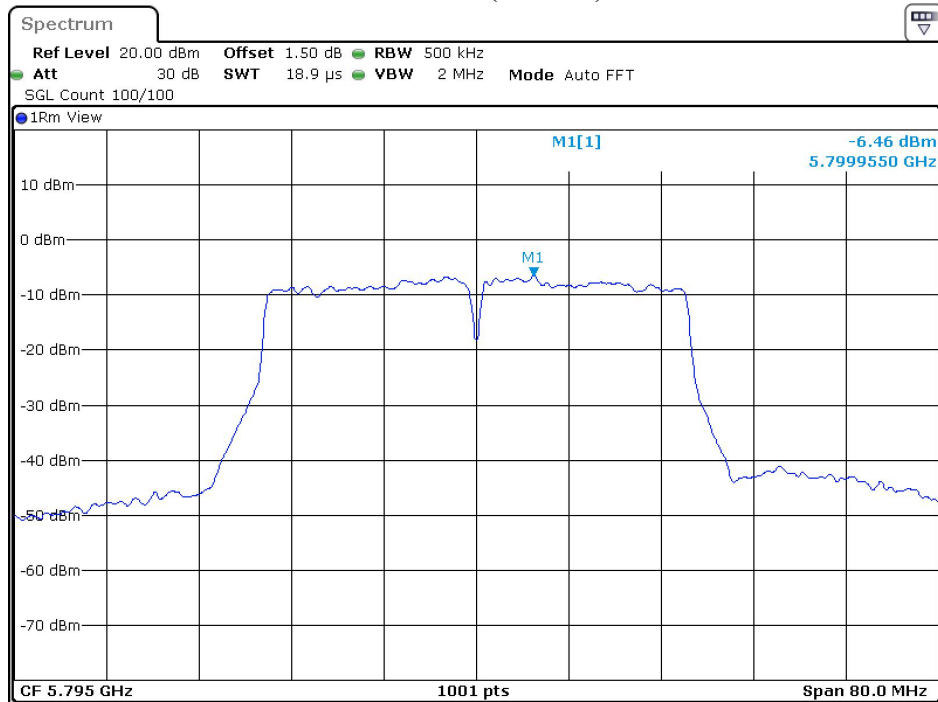
Date: 19.OCT.2023 21:58:12

### Channel 151 (Chain B)



Date: 19.OCT.2023 22:08:38

### Channel 159 (Chain B)

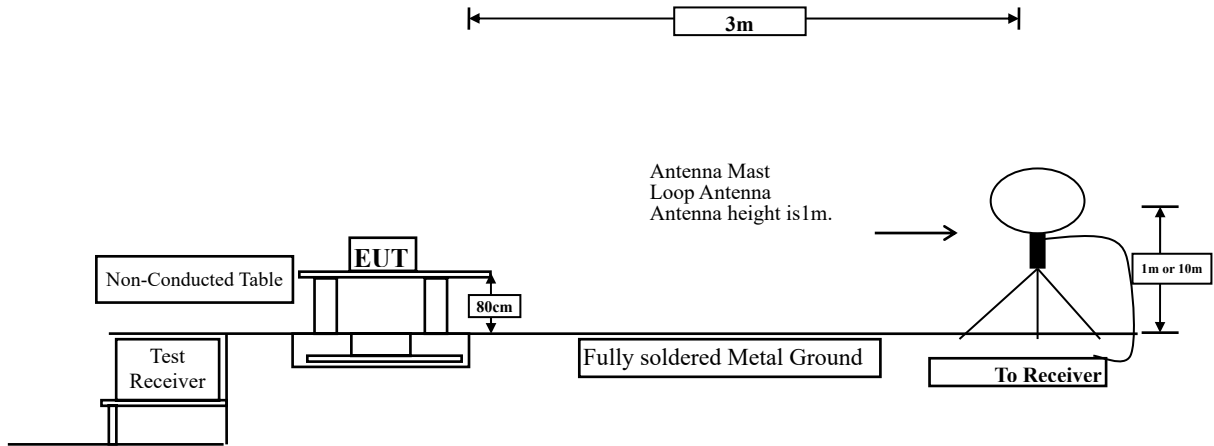


Date: 19.OCT.2023 22:09:50

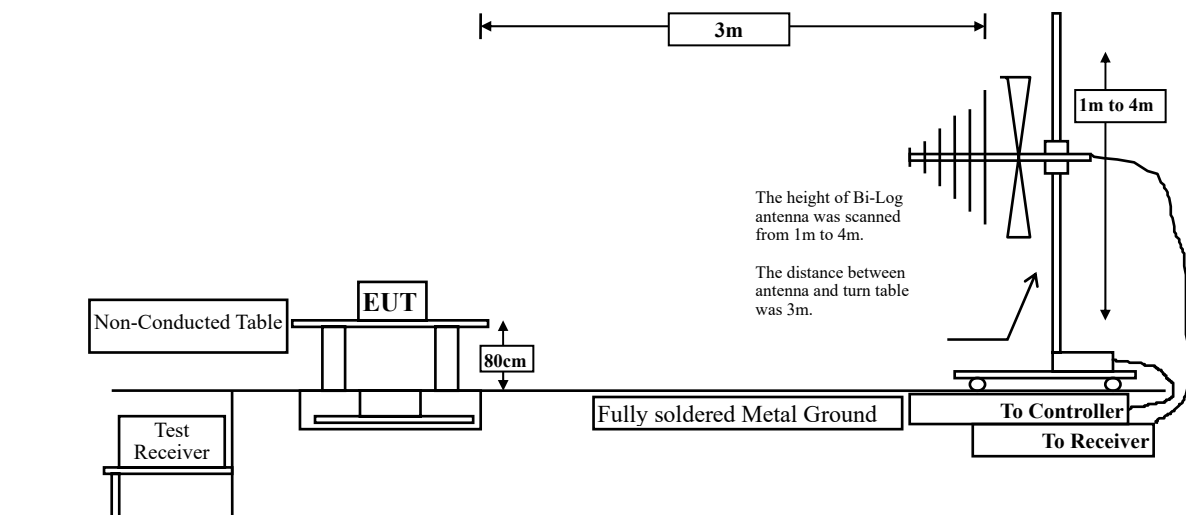
## 5. Radiated Emission

### 5.1. Test Setup

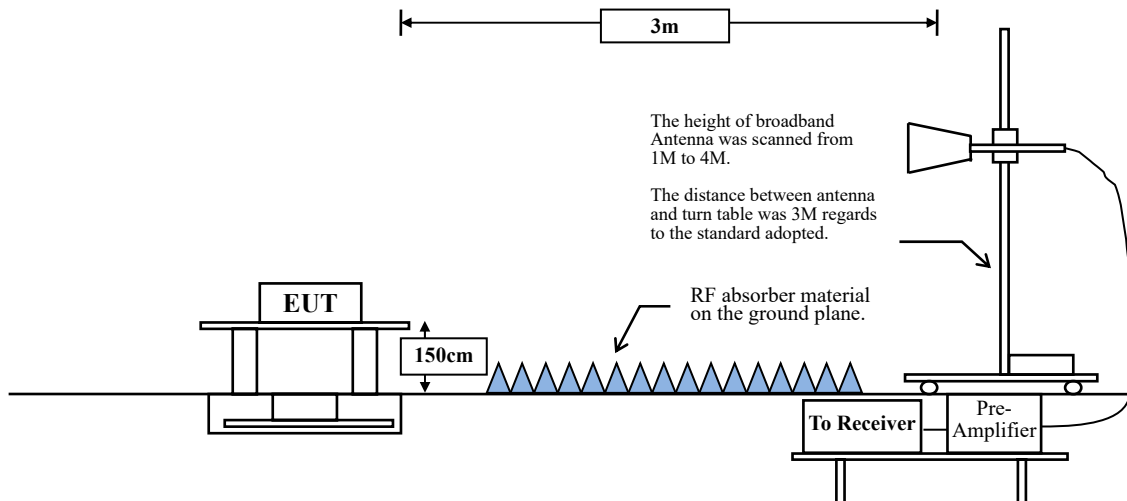
#### Radiated Emission Under 30 MHz



#### Radiated Emission Below 1 GHz



#### Radiated Emission Above 1 GHz



## 5.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dB $\mu$ V/m) = 20 log E field strength ( $\mu$ V/m)

- For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 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.
- For transmitters operating in the 5.850-5.895 GHz band:
  - (i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of -7 dBm/MHz at or above 5.925 GHz.
  - (ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz.
  - (iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.
- For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of -27 dBm/MHz.

Based on ANSI C63.10-2013 Section 12.7.3 d) provides the conversion formula between field strength and EIRP, if distance is 3m, -27dBm is equivalent to 68.22dBuV/m.

### 5.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

Measuring the frequency range below 1 GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1 GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30 MHz setting on the field strength meter is 9kHz and 30 MHz~1 GHz is 120 kHz and above 1 GHz is 1 MHz.

Radiated emission measurements below 30 MHz are made using Loop Antenna and 30 MHz~1 GHz are made using broadband Bilog antenna and above 1 GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9 kHz - 10th Harmonic of fundamental was investigated.

#### **RBW and VBW Parameter setting:**

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW  $\geq$  3 MHz.

According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

RBW = 1 MHz.

VBW = 10 Hz, when duty cycle  $\geq$  98 %

VBW  $\geq$  1/T, when duty cycle < 98 %

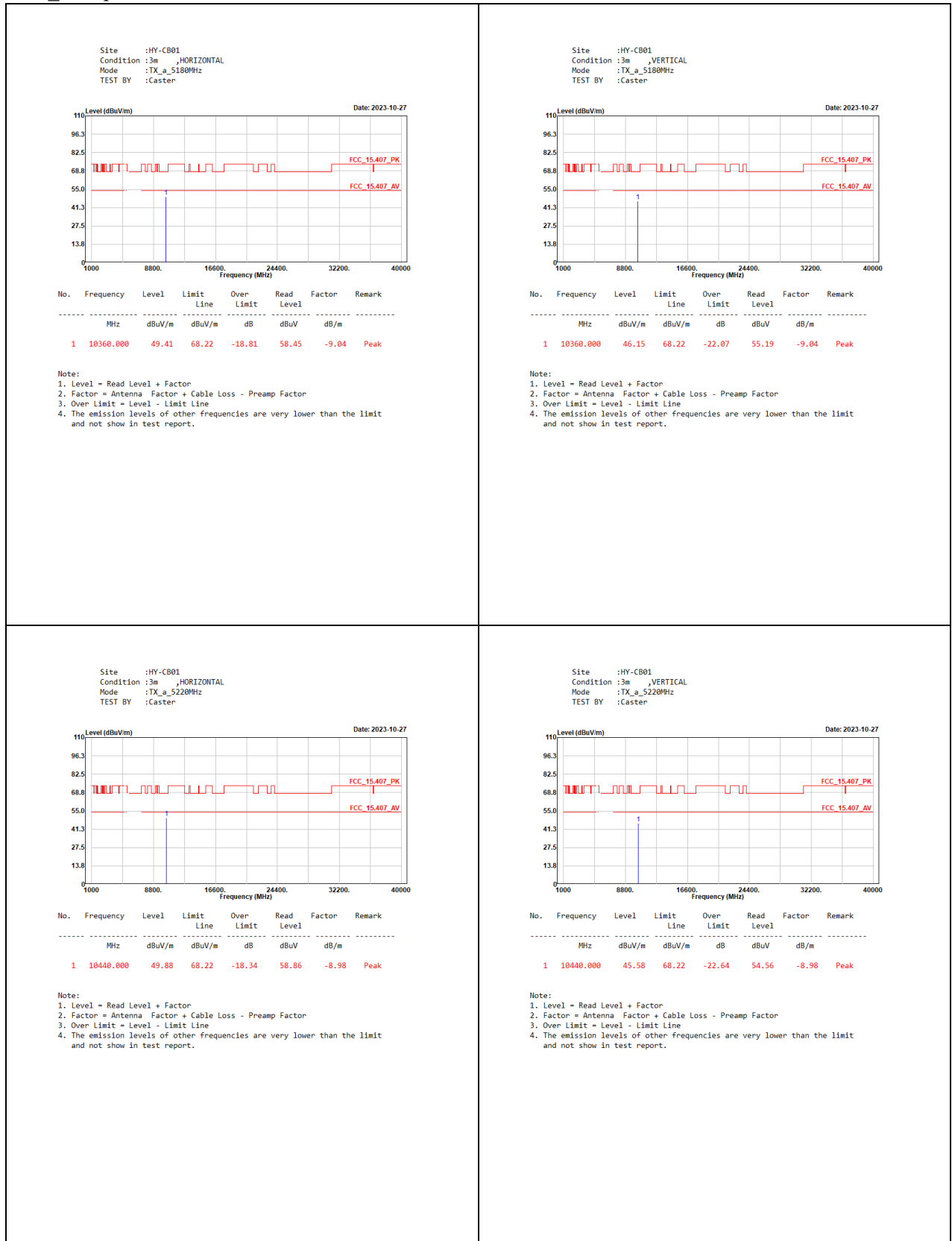
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

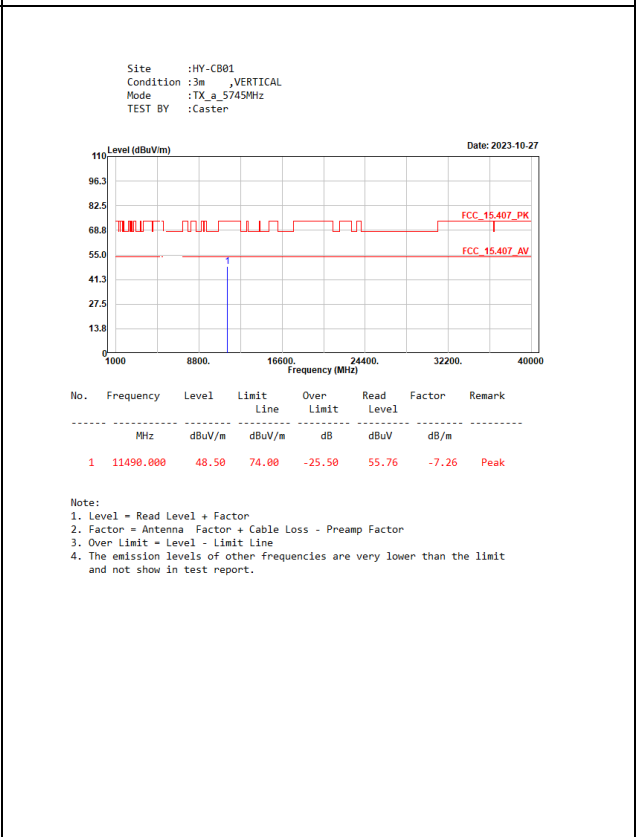
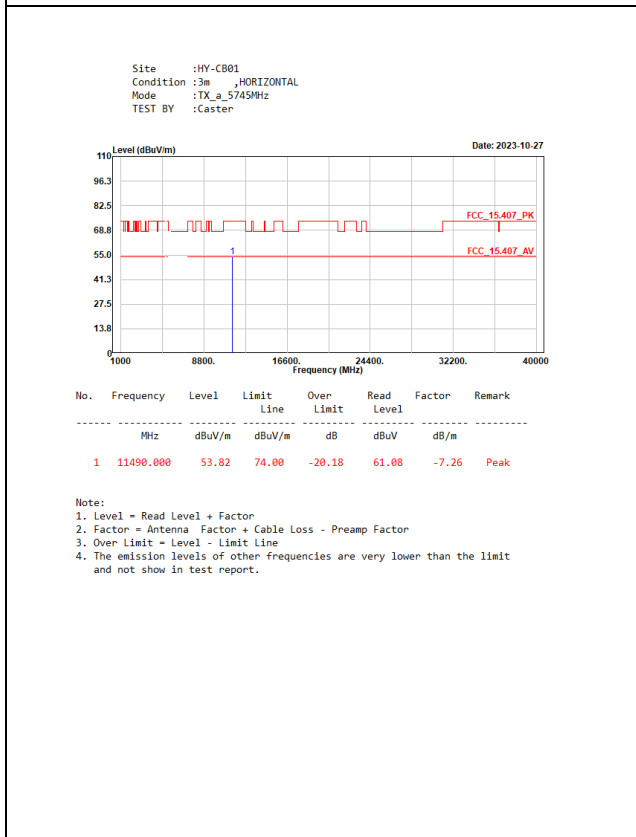
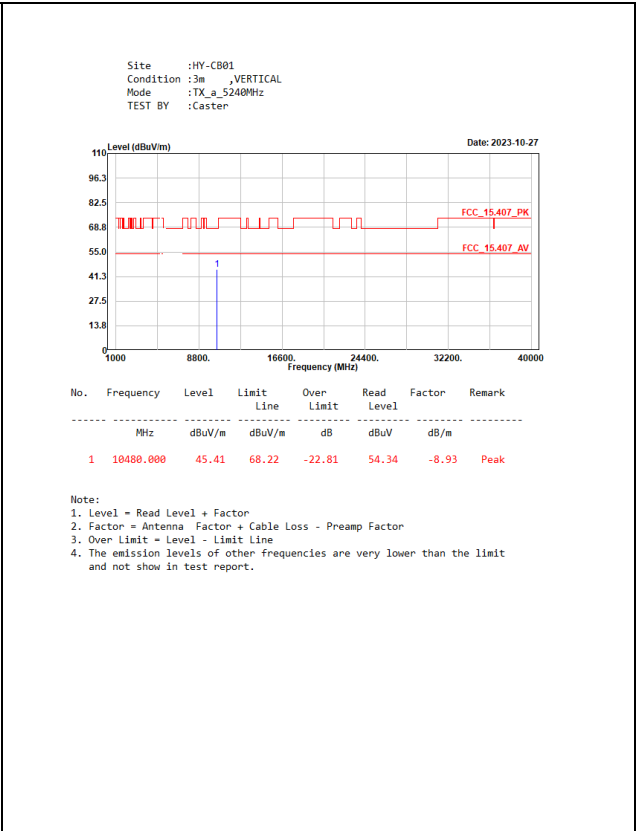
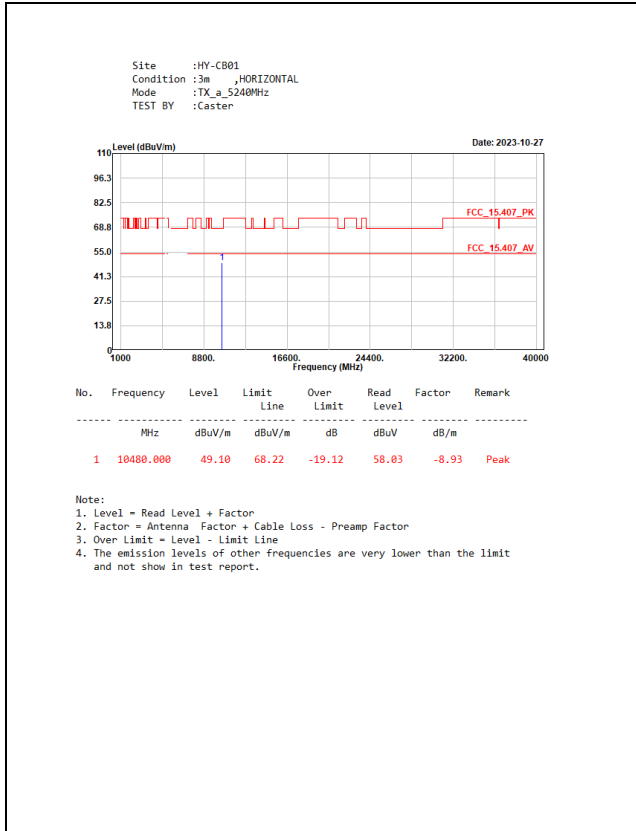
5 GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a	98.10	2.0640	484	10
802.11ac-20 MHz	96.11	0.9880	1012	2000
802.11ac-40 MHz	92.91	0.4980	2008	3000

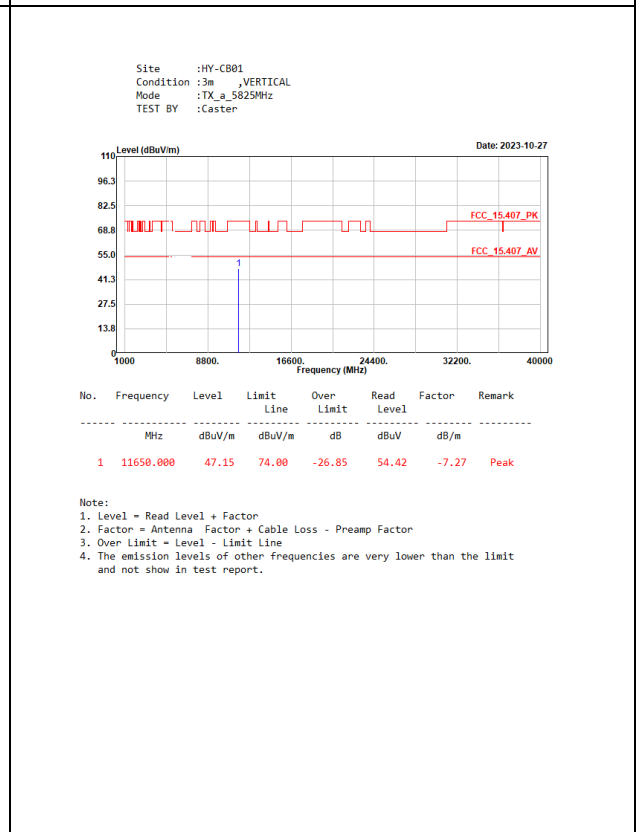
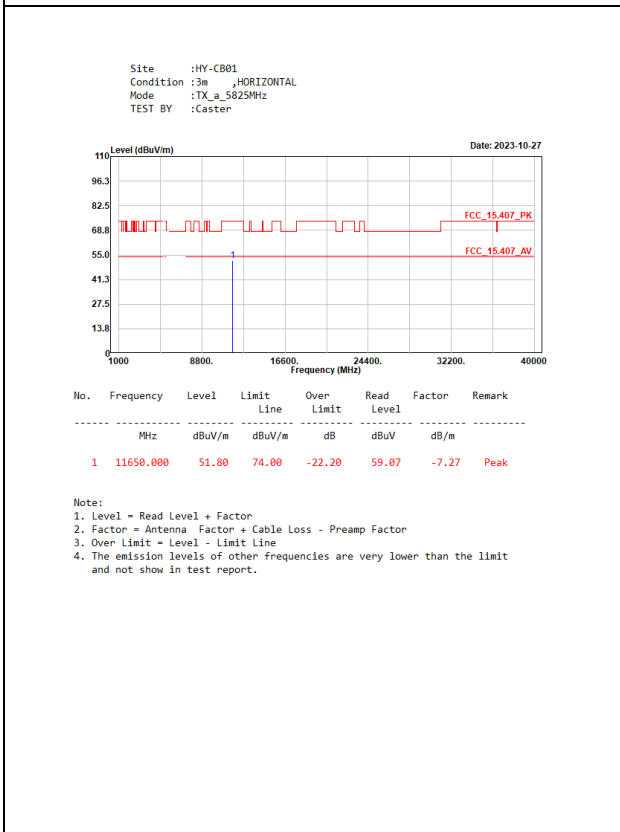
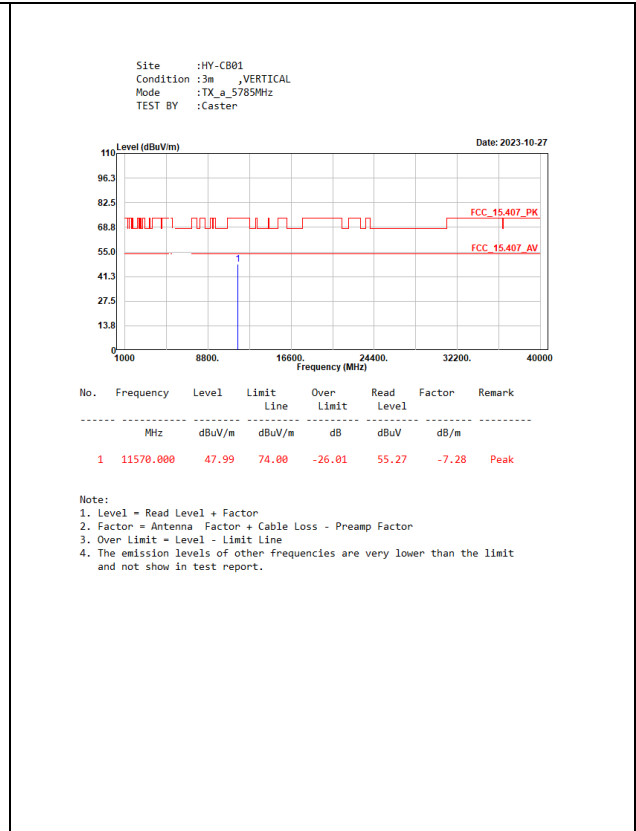
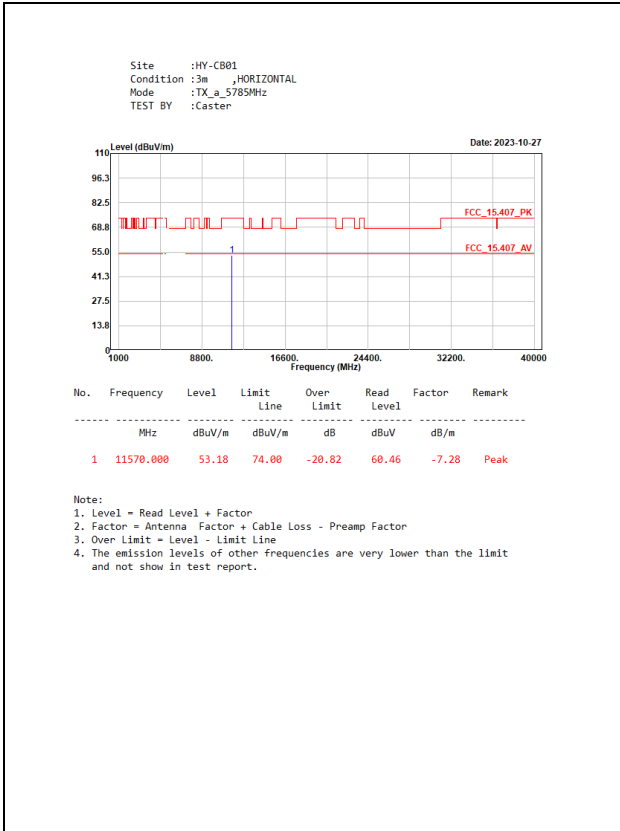
Note: Duty Cycle Refer to Section 8.

### 5.4. Test Result of Radiated Emission

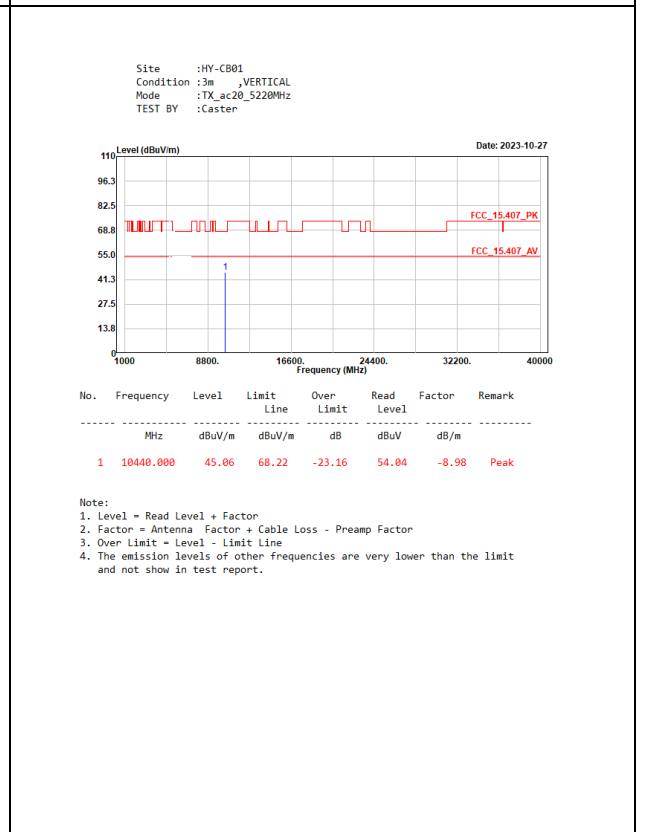
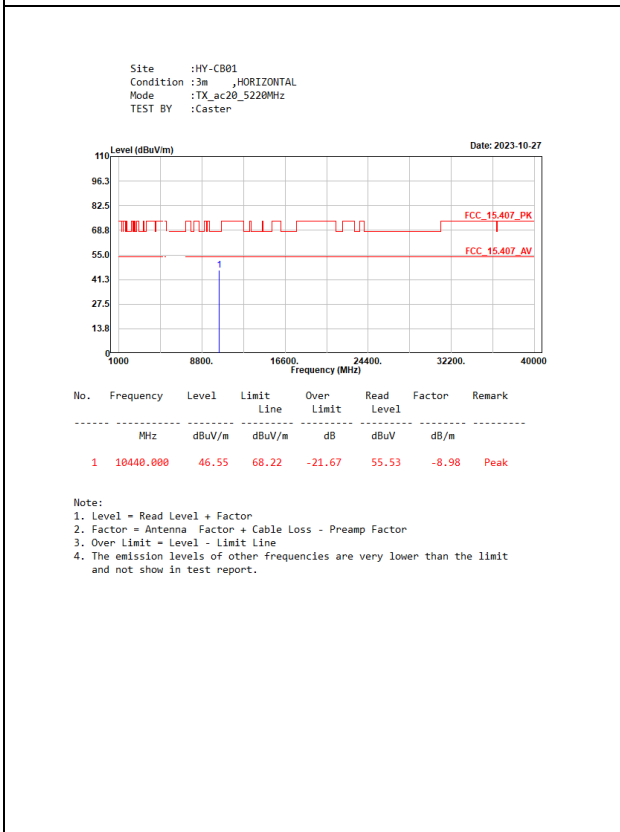
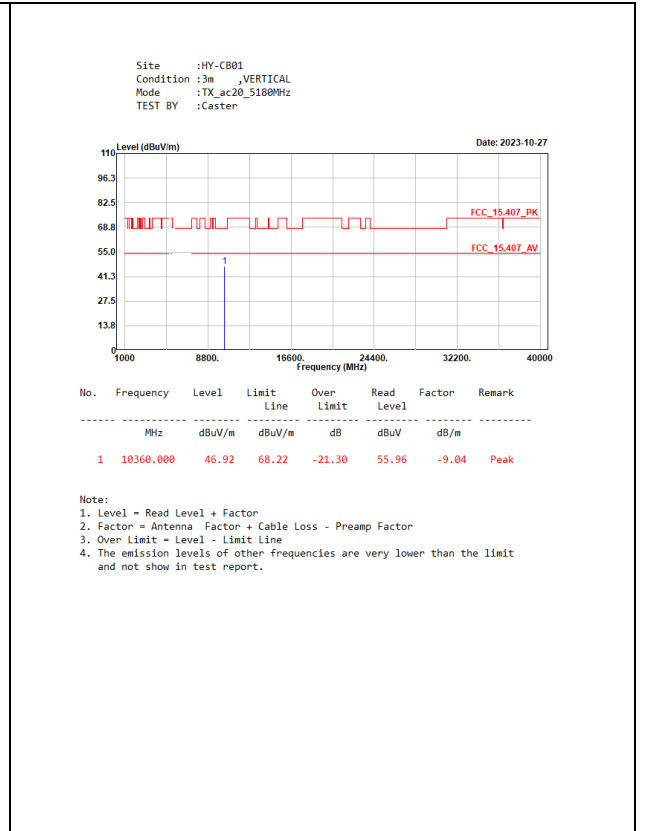
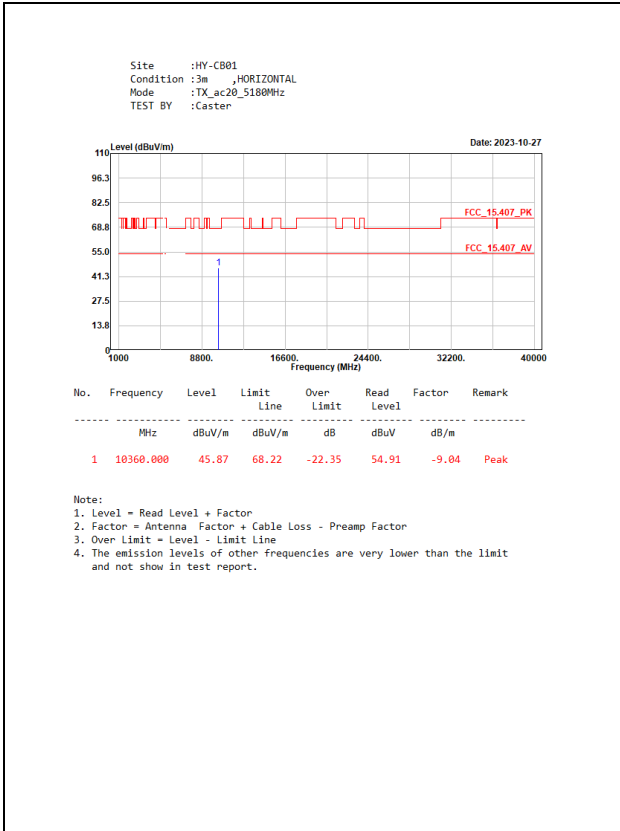
#### NA2\_Sample ID 03

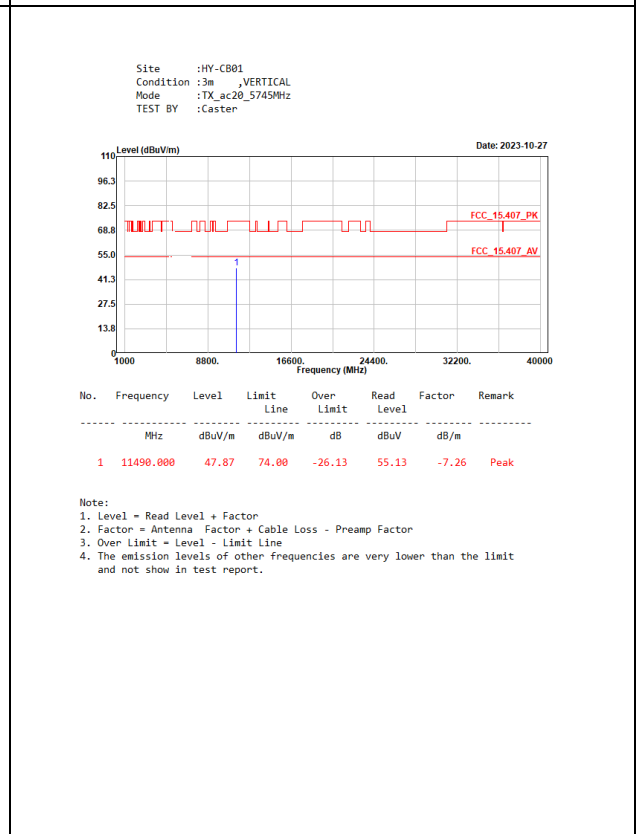
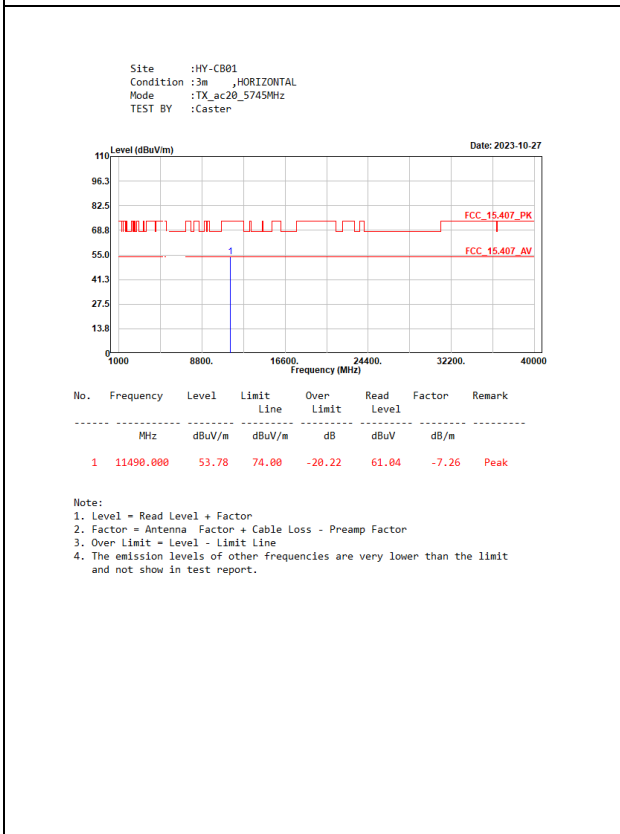
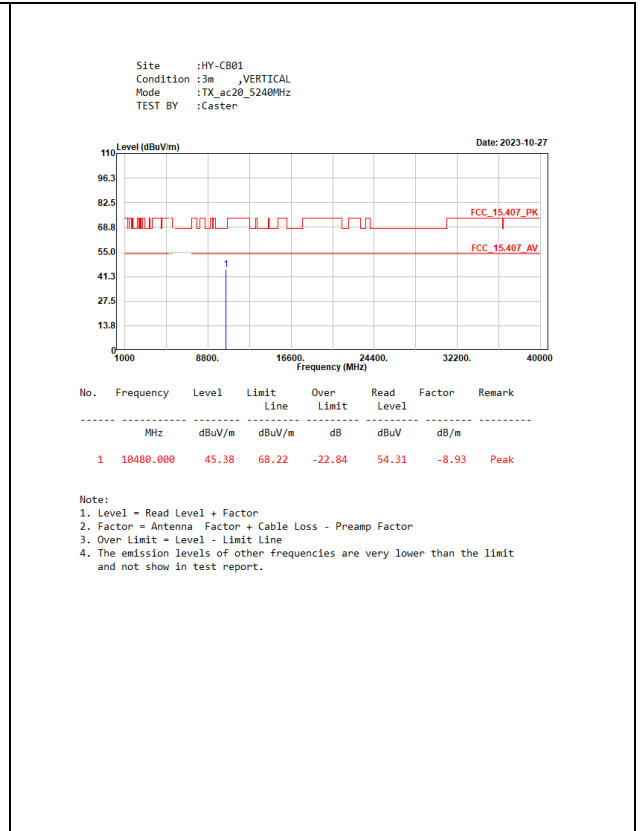
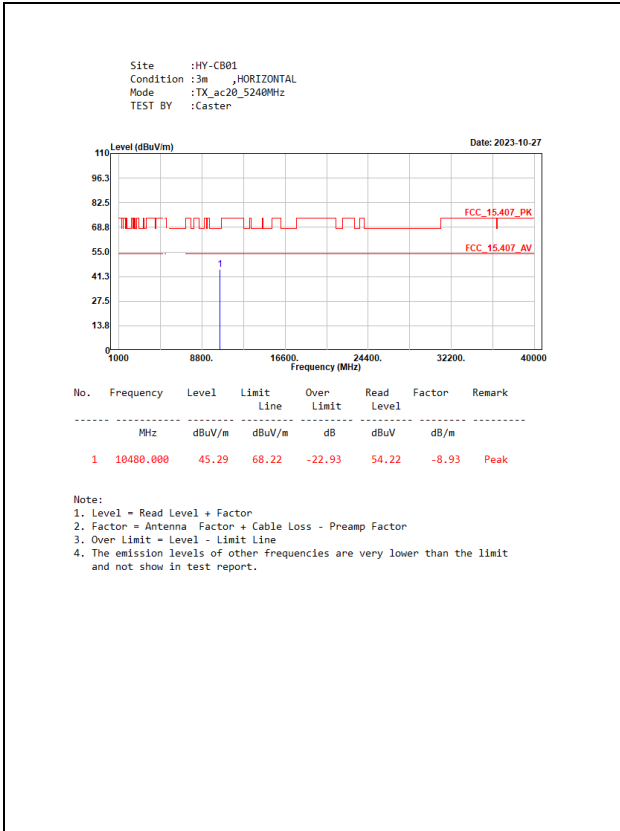


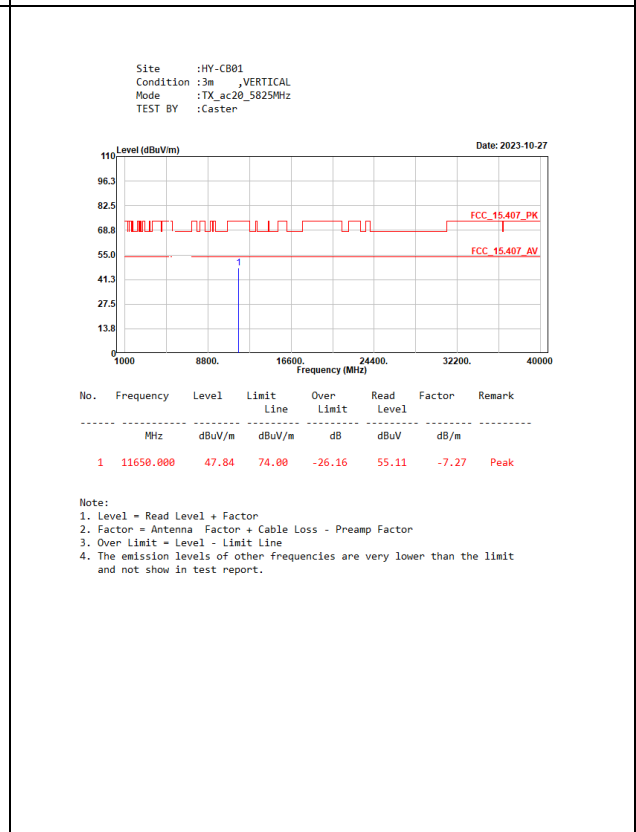
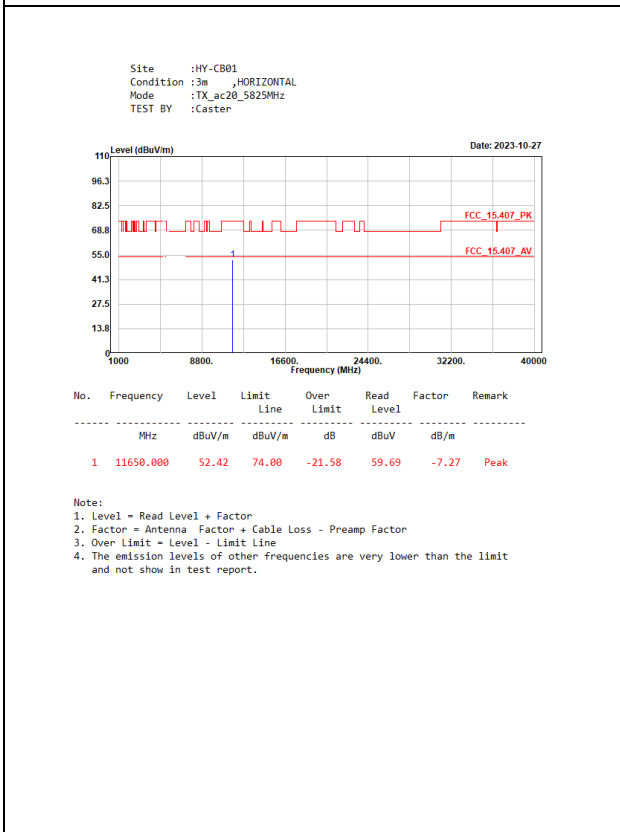
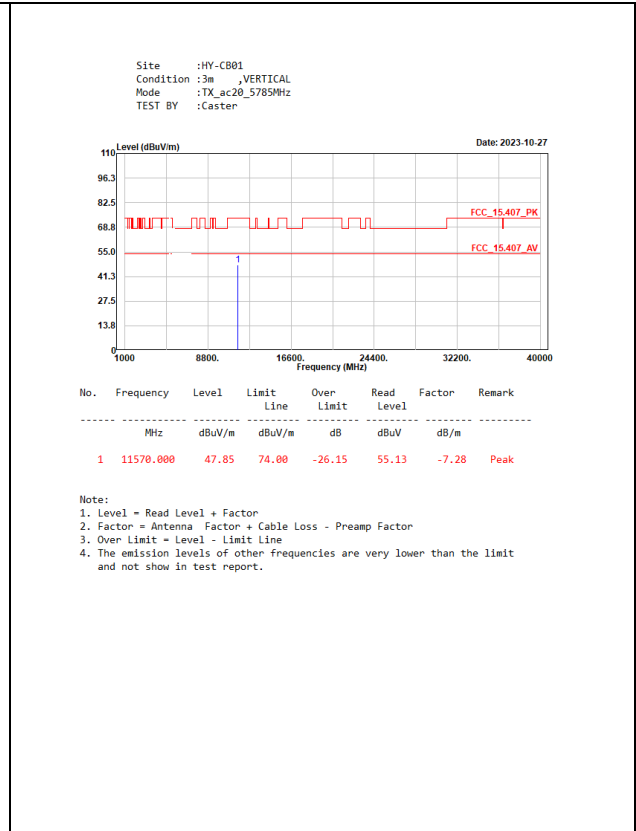
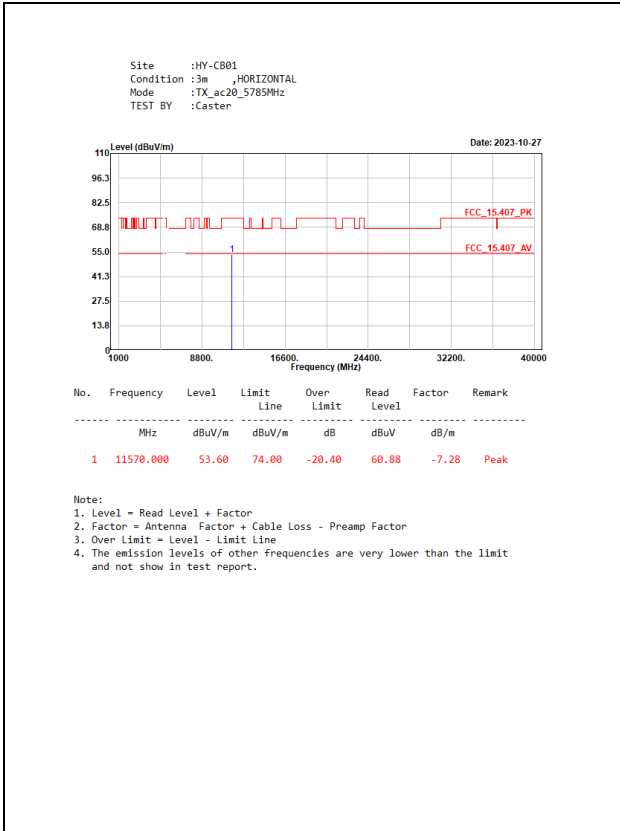


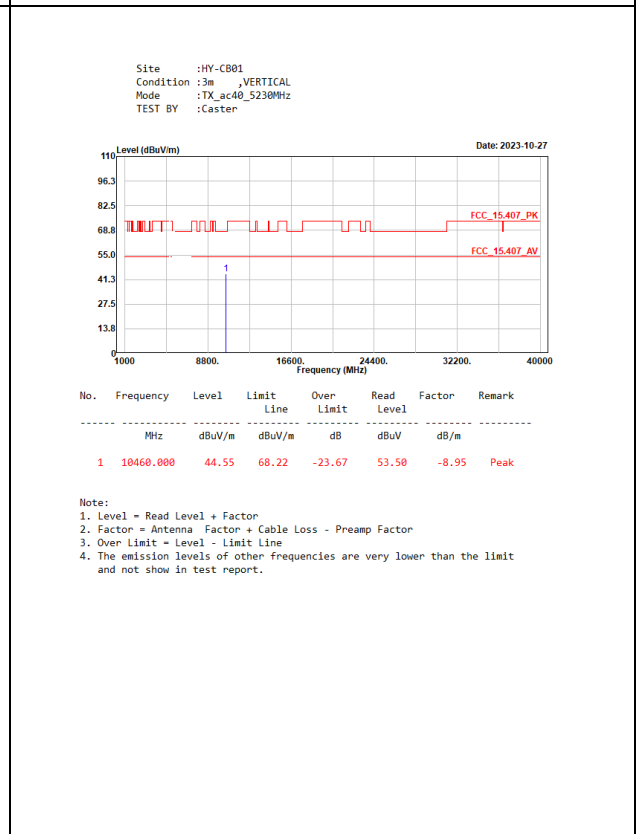
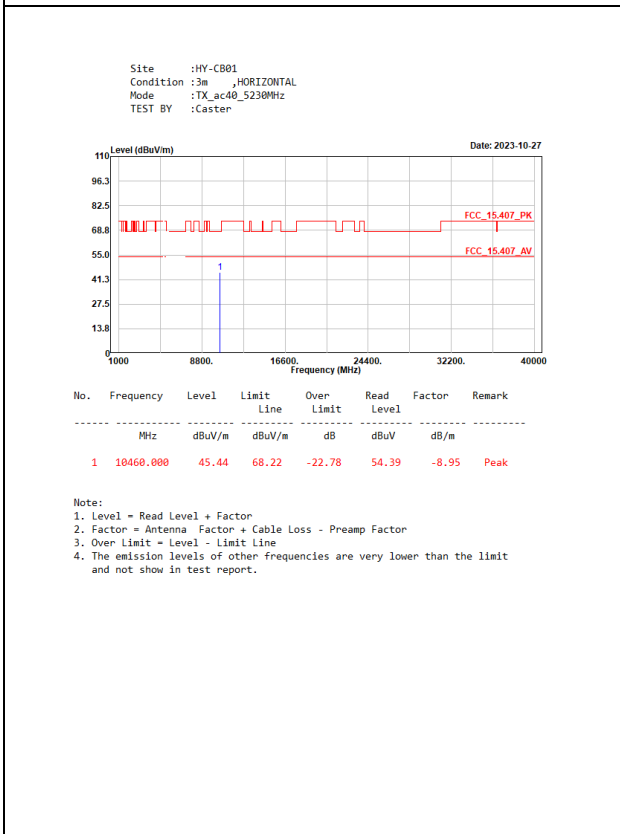
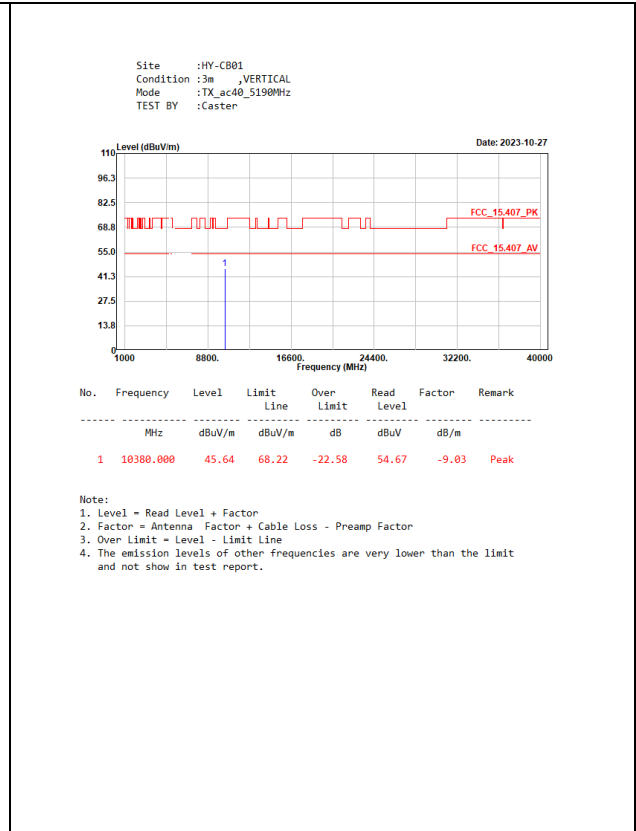
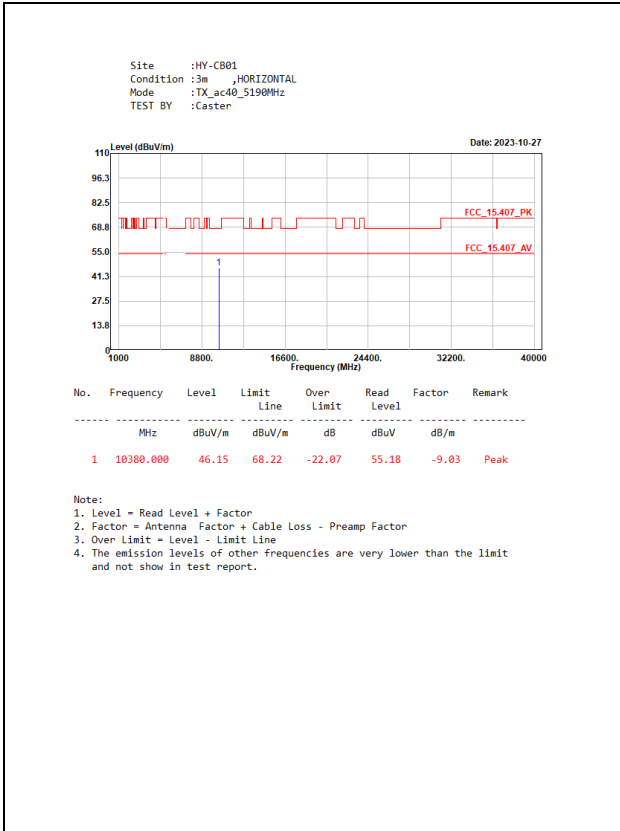


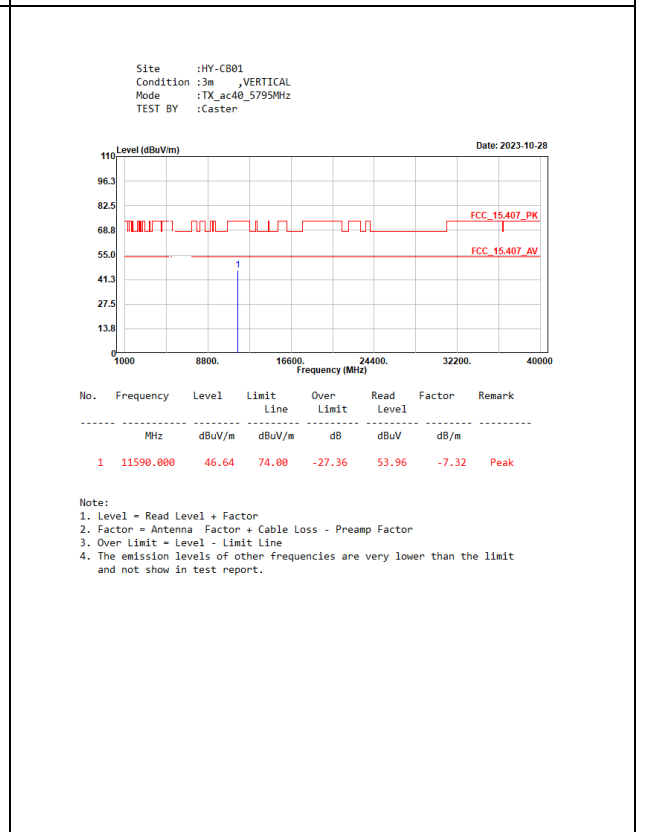
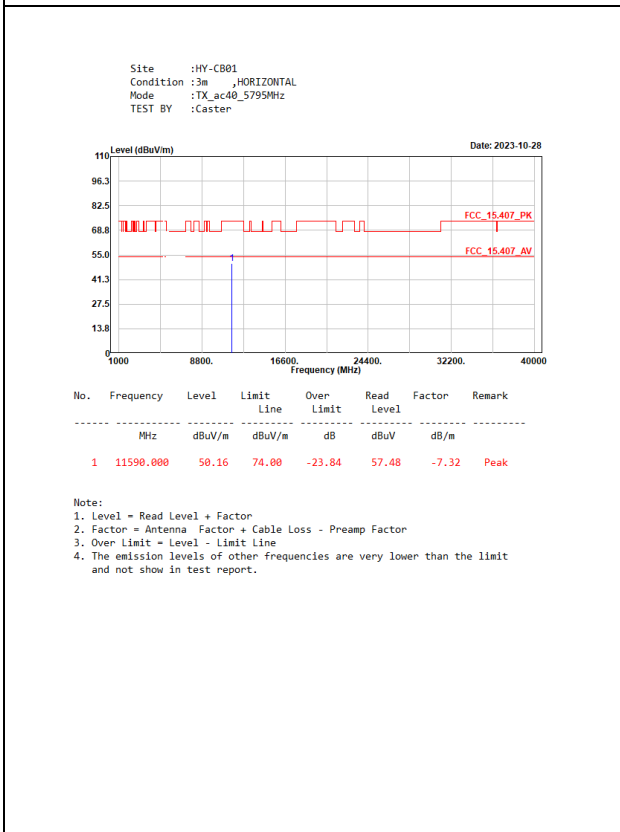
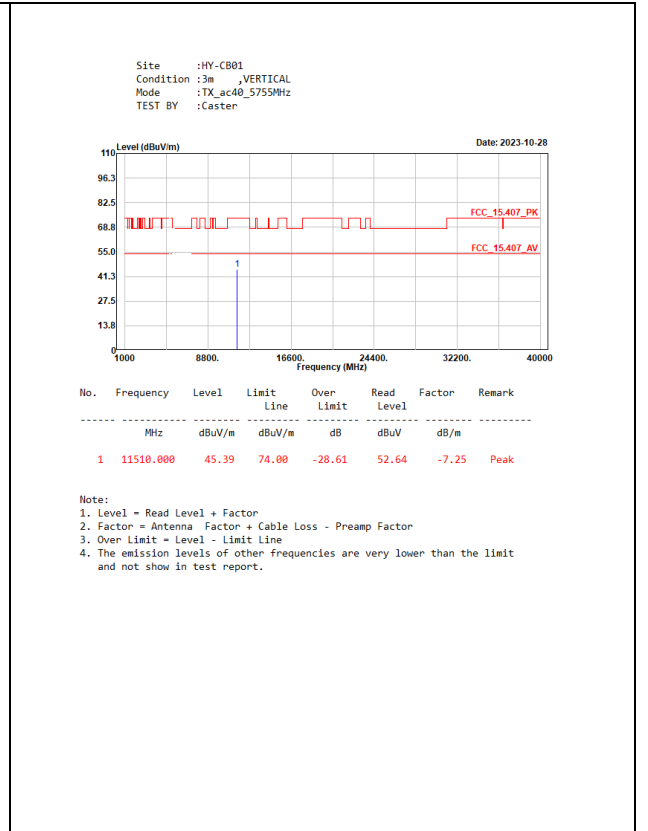
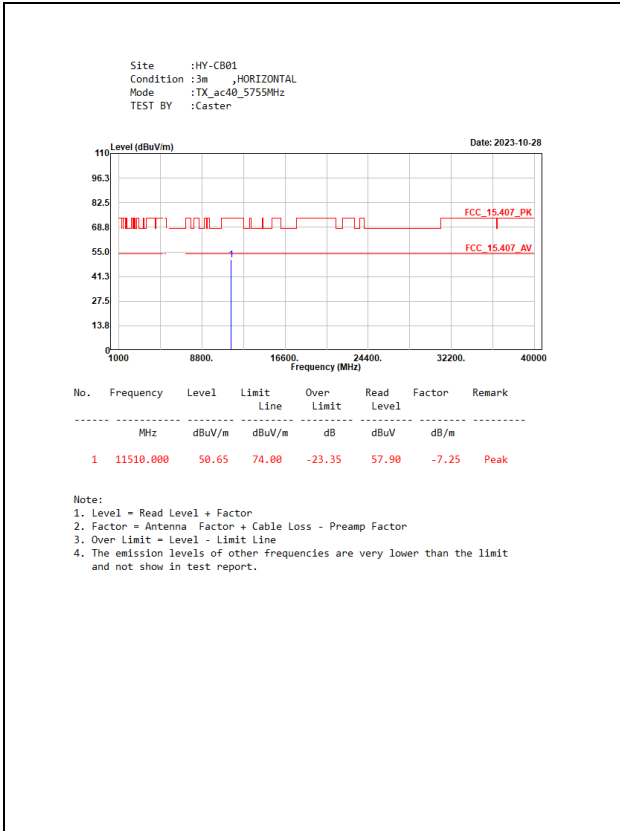


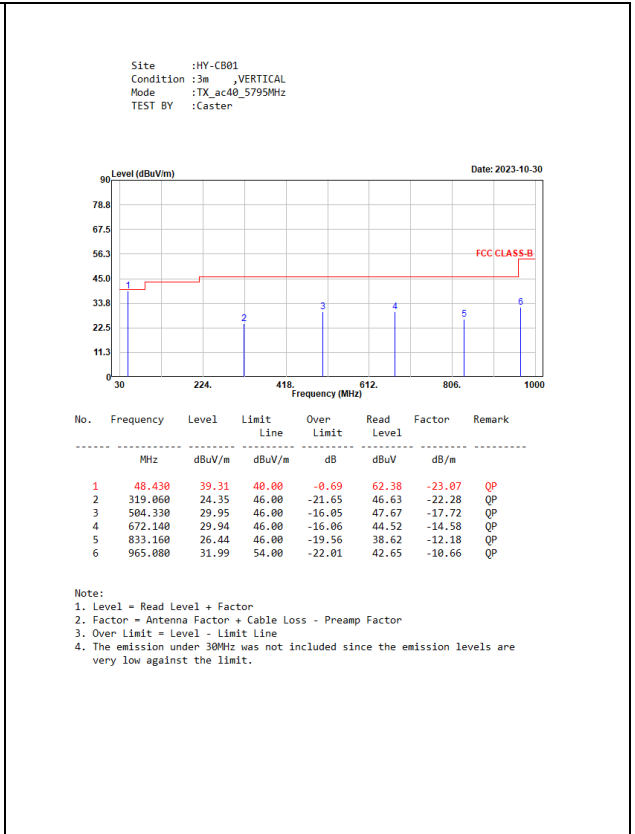
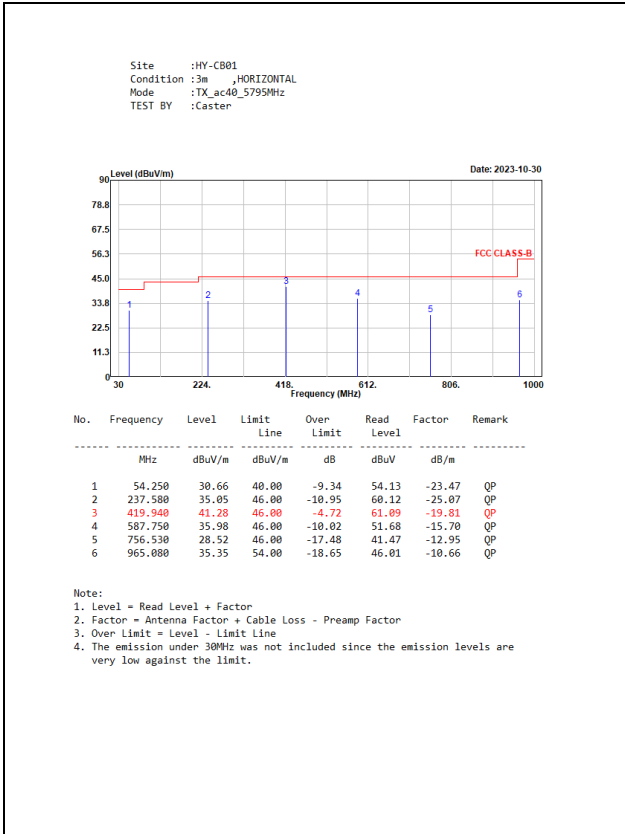












NA1\_Sample ID 01

<p>Site :HY-CB01 Condition :3m ,HORIZONTAL Mode :TX_a_5180MHz TEST BY :Sam</p> <p>Date: 2023-11-08</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency MHz</th> <th>Level dBuV/m</th> <th>Limit Line dBuV/m</th> <th>Over Limit dB</th> <th>Read Level dBuV</th> <th>Factor dB/m</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10360.000</td> <td>47.53</td> <td>68.22</td> <td>-20.69</td> <td>56.57</td> <td>-9.04</td> <td>Peak</td> </tr> </tbody> </table> <p>Note: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The emission levels of other frequencies are very lower than the limit and not show in test report.</p>	No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB/m	Remark	1	10360.000	47.53	68.22	-20.69	56.57	-9.04	Peak	<p>Site :HY-CB01 Condition :3m ,VERTICAL Mode :TX_a_5180MHz TEST BY :Sam</p> <p>Date: 2023-11-08</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Frequency MHz</th> <th>Level dBuV/m</th> <th>Limit Line dBuV/m</th> <th>Over Limit dB</th> <th>Read Level dBuV</th> <th>Factor dB/m</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10360.000</td> <td>45.69</td> <td>68.22</td> <td>-22.53</td> <td>54.73</td> <td>-9.04</td> <td>Peak</td> </tr> </tbody> </table> <p>Note: 1. Level = Read Level + Factor 2. Factor = Antenna Factor + Cable Loss - Preamp Factor 3. Over Limit = Level - Limit Line 4. The emission levels of other frequencies are very lower than the limit and not show in test report.</p>	No.	Frequency MHz	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Read Level dBuV	Factor dB/m	Remark	1	10360.000	45.69	68.22	-22.53	54.73	-9.04	Peak
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