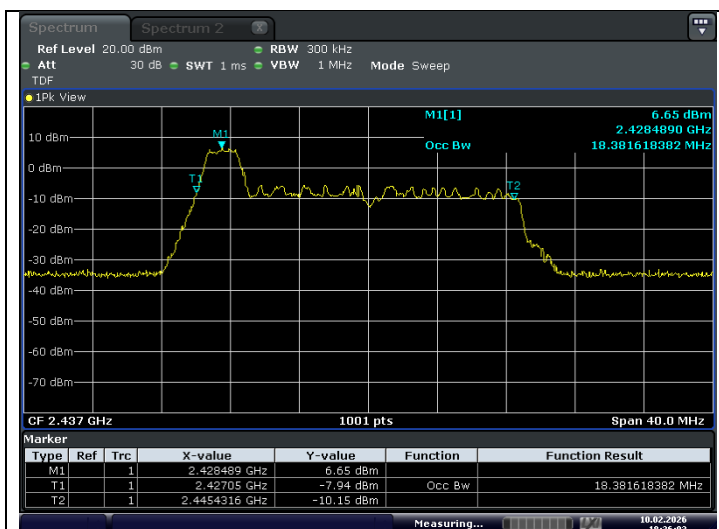
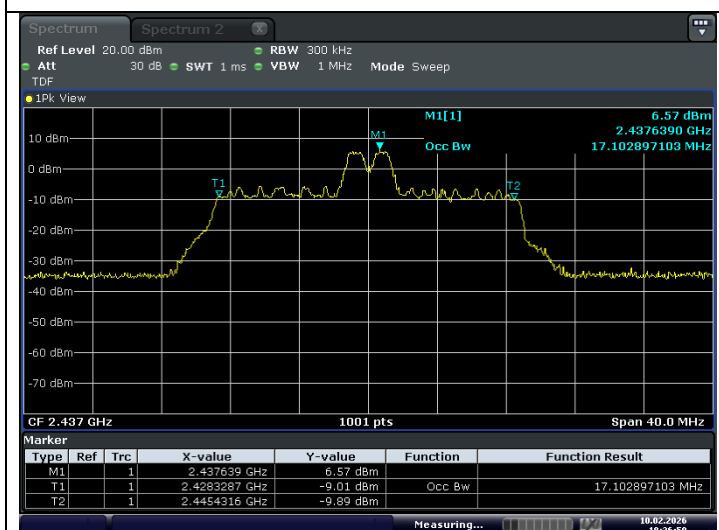


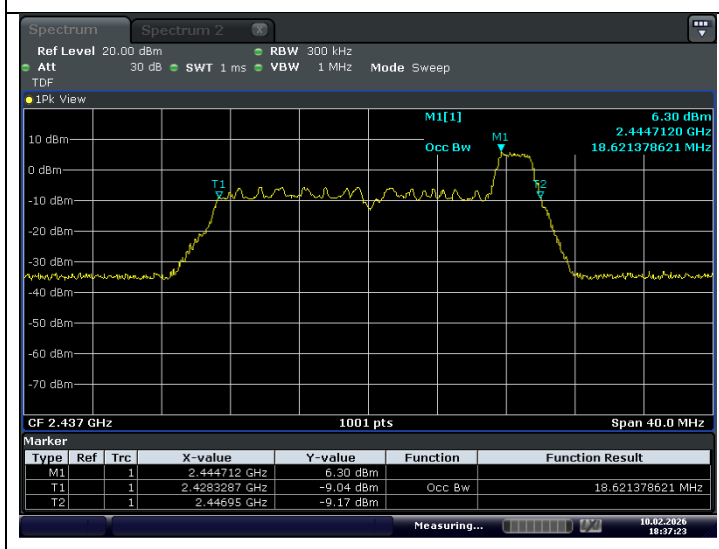
Middle Channel
_0 RU



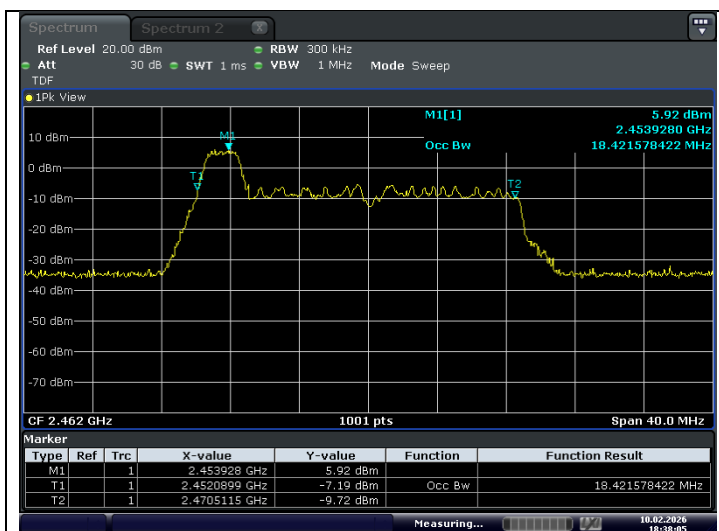
Middle Channel
_4 RU



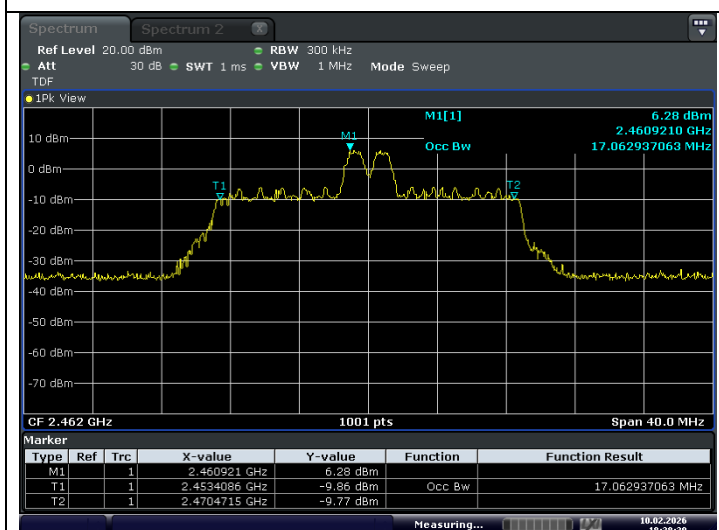
Middle Channel
_8 RU



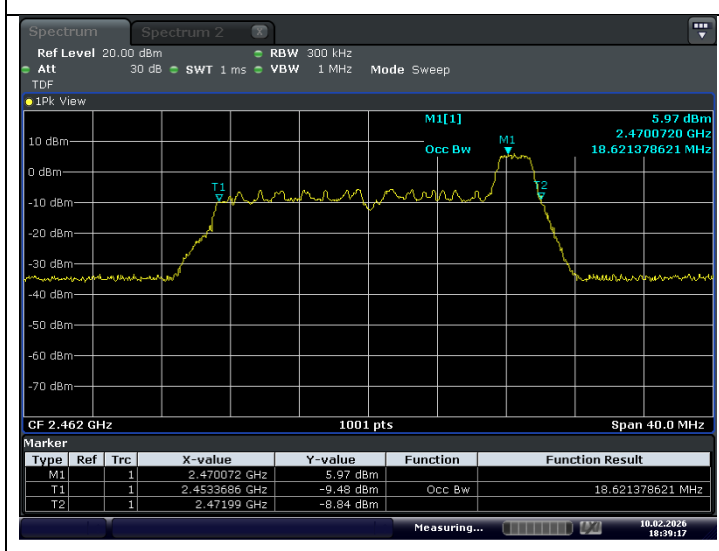
High Channel
_0 RU



High Channel
_4 RU

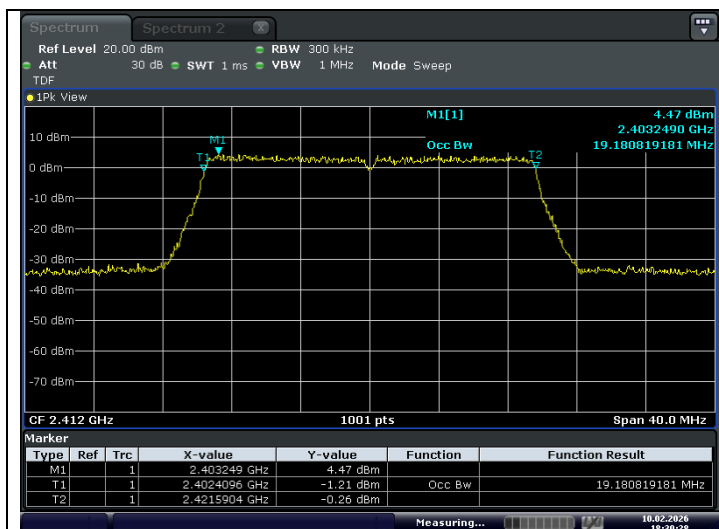


High Channel
_8 RU

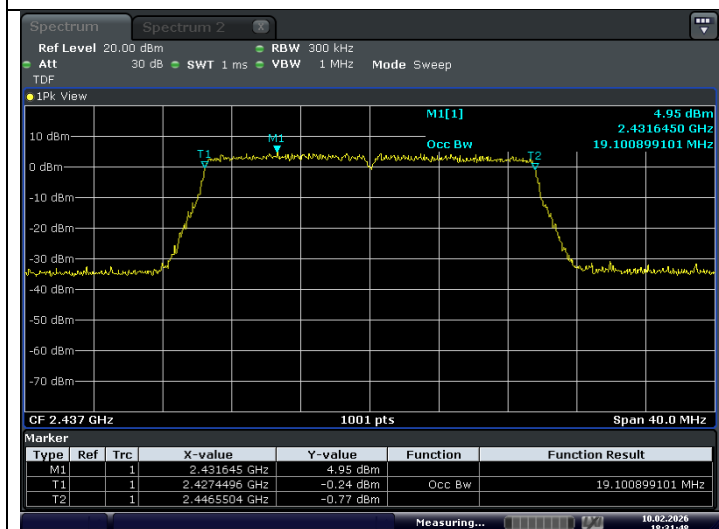


11ax_HE20_SU

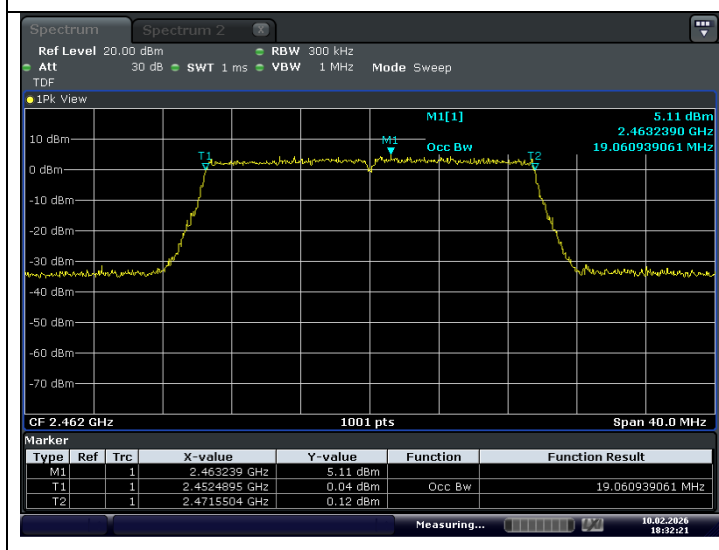
Low Channel



Middle Channel

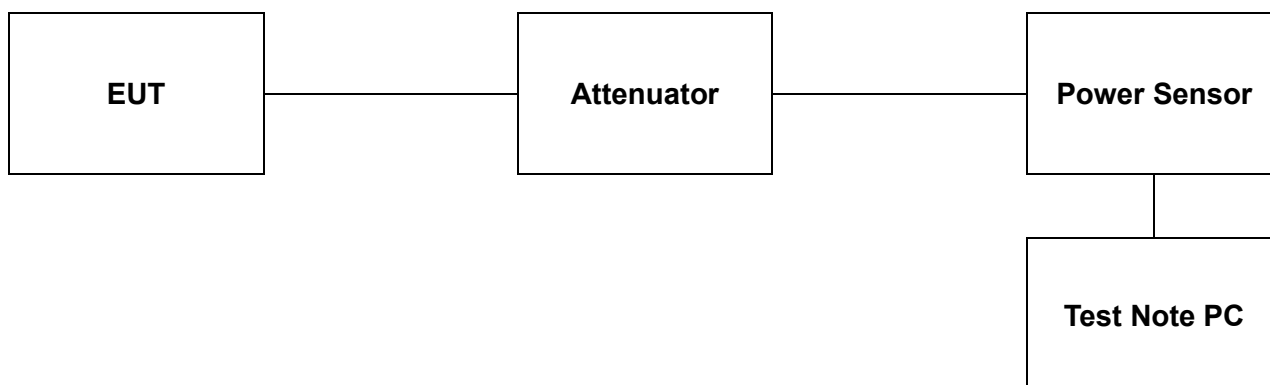


High Channel



4. Maximum Peak Conducted Output Power

4.1. Test Setup



4.2. Limit

According to §15.247(b)(3), for systems using digital modulation in the 902-928 MHz, 2 400-2 483.5 MHz, and 5 725-5 850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3. Test Procedure

The test follows section 11.9.1.3 of ANSI C63.10-2020.

PKPM1 Peak-reading power meter method

- The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

Method AVGP-M (Measurement using a gated RF average-reading power meter)

- Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

Gate triggering can be implemented in such a way that the sweep of the instrument is only active during the burst period of the device. Any Gate triggering shall be performed on the full power portion of the pulses and care must be taken to ensure that static portions of the pulse are not included in the measurement (ensuring that the trace is averaged over the entire symbol range). All Gate triggered measurements shall be accompanied by a Gate setup plot in the test report.

Test program: (S/W name: R&S Power Viewer, Version: 3.2.0)

1. Initially overall offset for attenuator and cable loss is measured per frequency.
2. Measured offset is inserted in test program in advance of measurement for output power.
3. Power for each frequency (channel) of device is investigated as final result.
4. Final result reported on this section from R&S power viewer program includes with several factors and test program shows only final result.

4.4. Test Results

Ambient temperature : (23 ± 1) °C

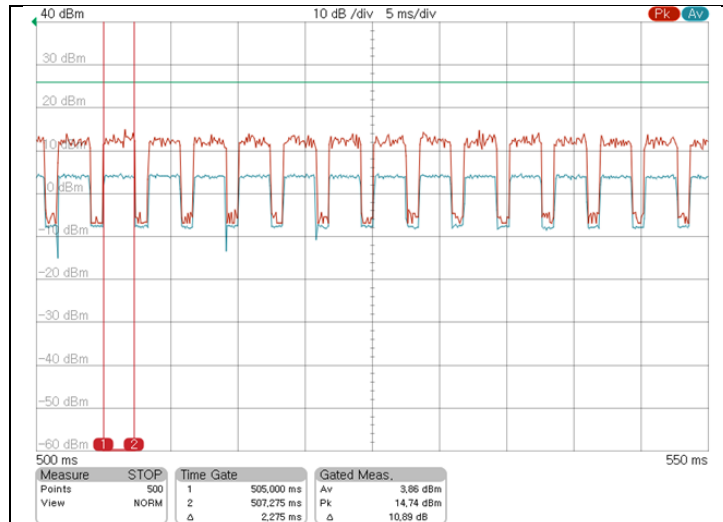
Relative humidity : 47 %

11ax_HE20									
Ch.	Freq.	Tones	Power Result (dB m)						Limit (dB m)
			RU Index						
			Low		Middle		High		
			Average	Peak	Average	Peak	Average	Peak	
Low	2 412	26T	3.86	14.74	3.79	13.65	4.18	14.99	30
Mid	2 437	26T	4.64	15.28	4.48	14.14	3.87	14.10	
High	2 462	26T	4.58	14.26	4.57	13.69	4.13	13.89	
11ax_HE20									
Ch.	Freq.	Tones	Power Result (dB m)						Limit (dB m)
			RU Index						
			Low		Middle		High		
			Average	Peak	Average	Peak	Average	Peak	
Low	2 412	52T	3.59	13.68	3.60	14.85	3.63	13.38	30
Mid	2 437	52T	4.23	14.79	4.62	14.07	3.65	14.08	
High	2 462	52T	5.06	14.62	4.53	14.08	3.71	13.98	
11ax_HE20									
Ch.	Freq.	Tones	Power Result (dB m)						Limit (dB m)
			RU Index						
			Low		Middle		High		
			Average	Peak	Average	Peak	Average	Peak	
Low	2 412	106T	4.94	15.48	-	-	5.61	16.13	30
Mid	2 437	106T	6.02	16.33	-	-	5.66	15.34	
High	2 462	106T	6.20	16.21	-	-	5.57	14.95	
11ax_HE20									
Ch.	Freq.	Tones	Power Result (dB m)						Limit (dB m)
			RU Index						
			Low		Middle		High		
			Average	Peak	Average	Peak	Average	Peak	
Low	2 412	242T	-	-	4.49	16.09	-	-	30
Mid	2 437	242T	-	-	5.52	16.40	-	-	
High	2 462	242T	-	-	4.99	15.56	-	-	
11ax_HE20									
Ch.	Freq.	Tones	Power Result (dB m)						Limit (dB m)
			RU Index						
			Low		Middle		High		
			Average	Peak	Average	Peak	Average	Peak	
Low	2 412	SU	-	-	11.21	21.11	-	-	30
Mid	2 437	SU	-	-	12.01	22.06	-	-	
High	2 462	SU	-	-	11.30	22.48	-	-	

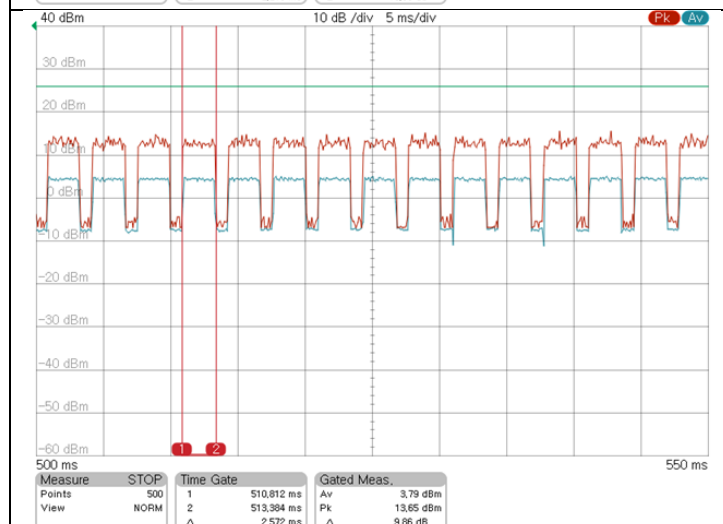
Test plots

11ax_HE20_26T

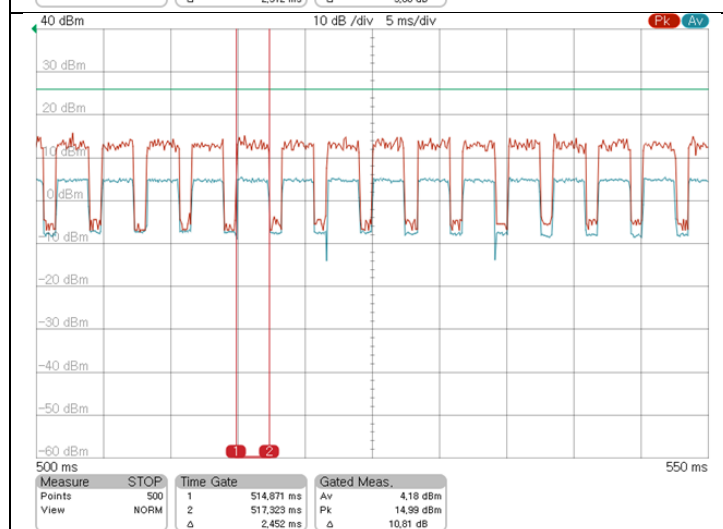
Low Channel
_0 RU



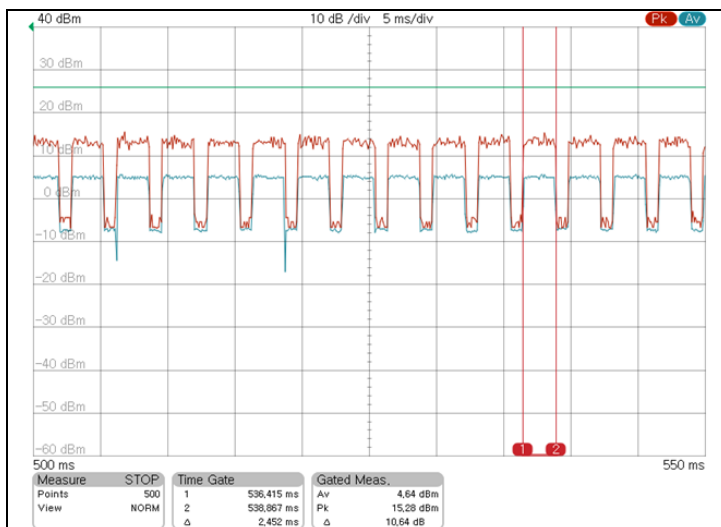
Low Channel
_4 RU



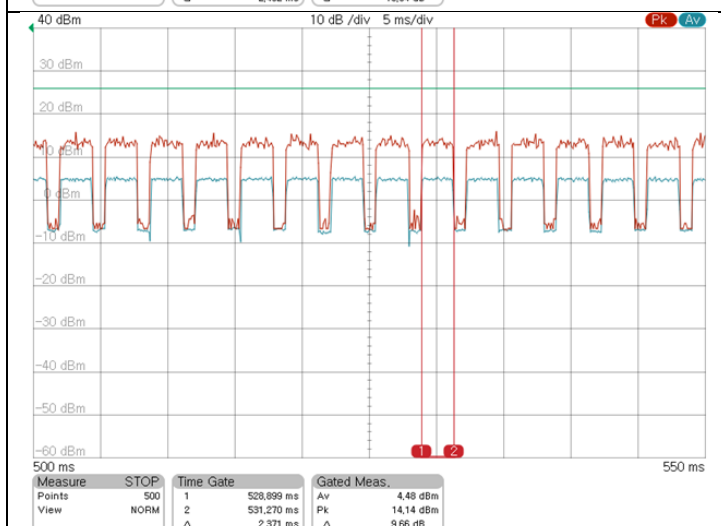
Low Channel
_8 RU



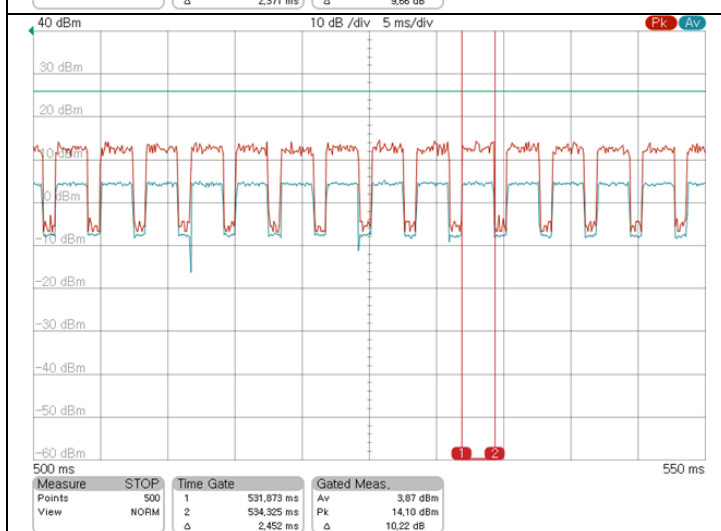
Middle Channel
_0 RU



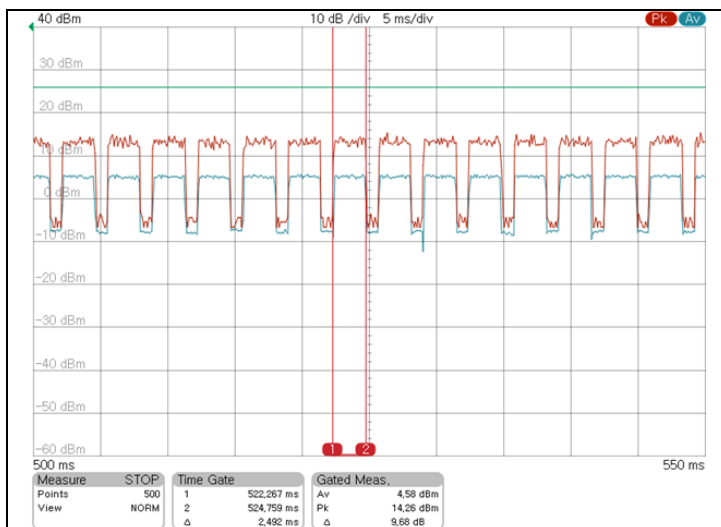
Middle Channel
_4 RU



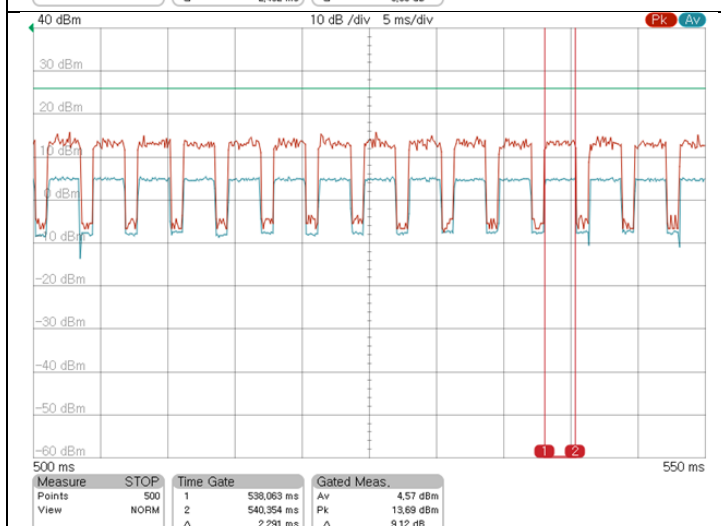
Middle Channel
_8 RU



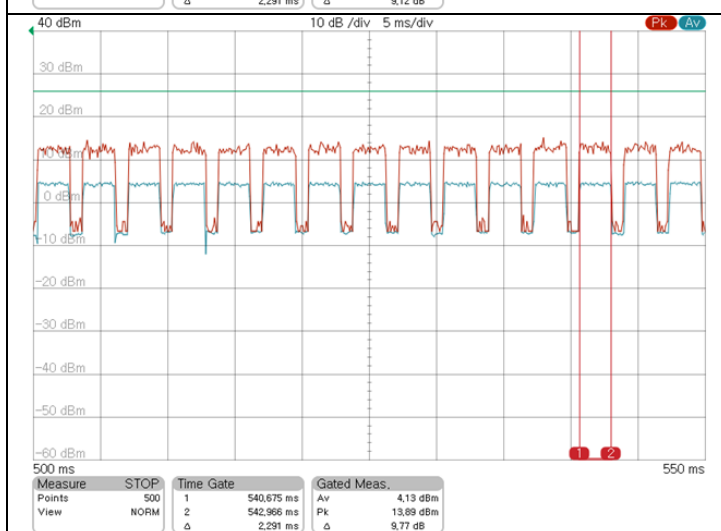
High Channel
_0 RU



High Channel
_4 RU

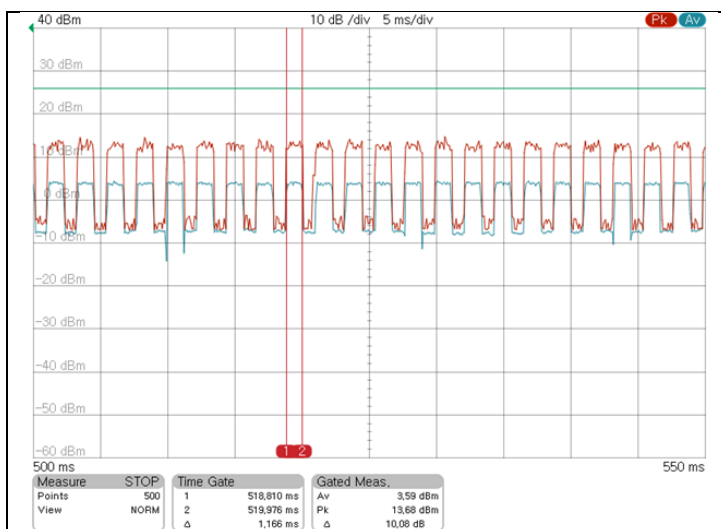


High Channel
_8 RU

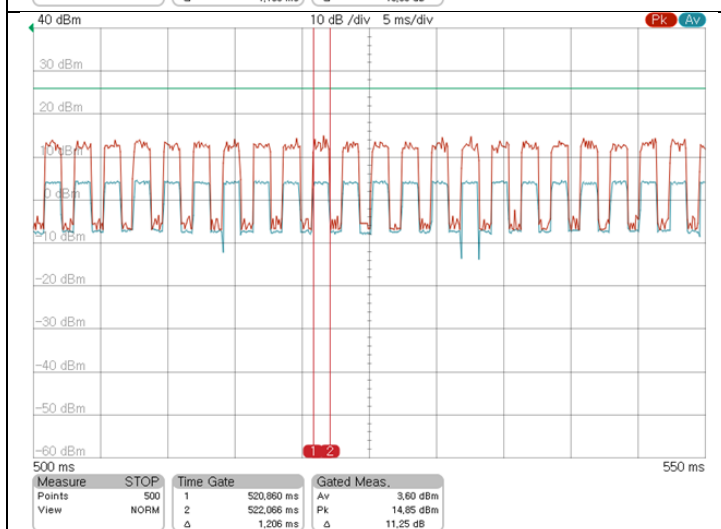


11ax_HE20_52T

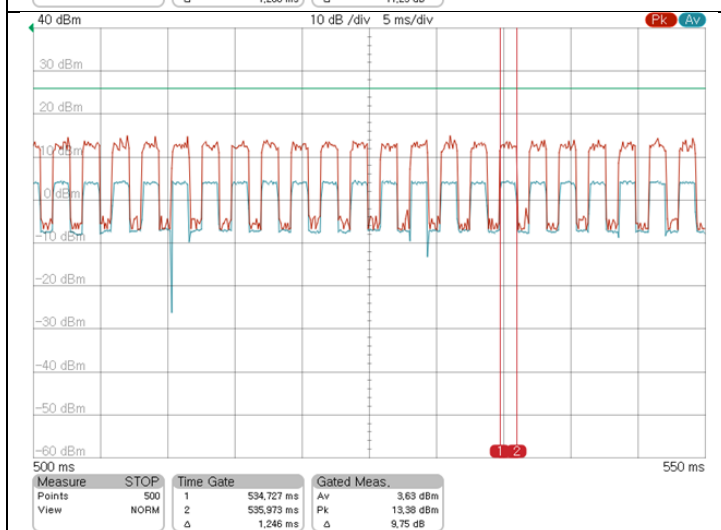
Low Channel
_37 RU



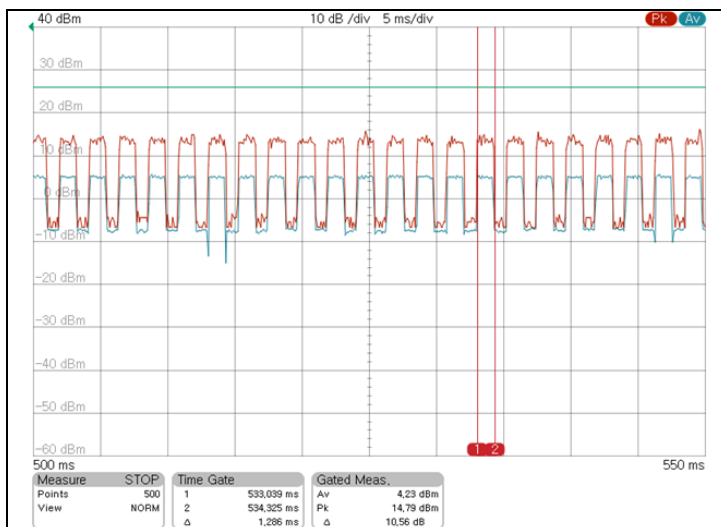
Low Channel
_38 RU



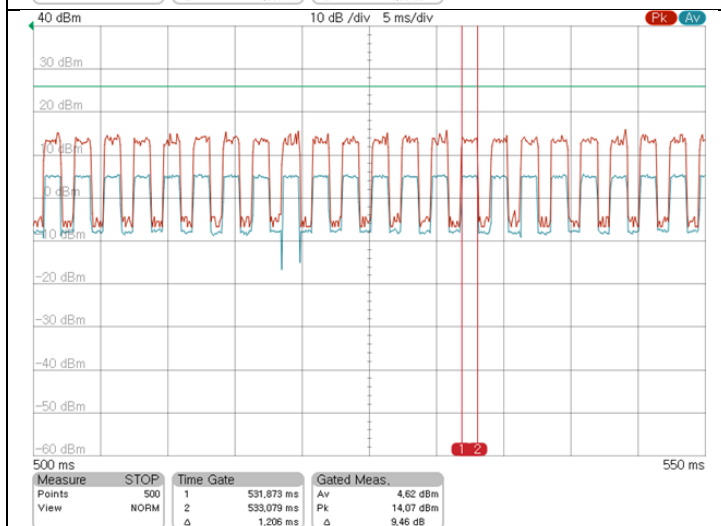
Low Channel
_40 RU



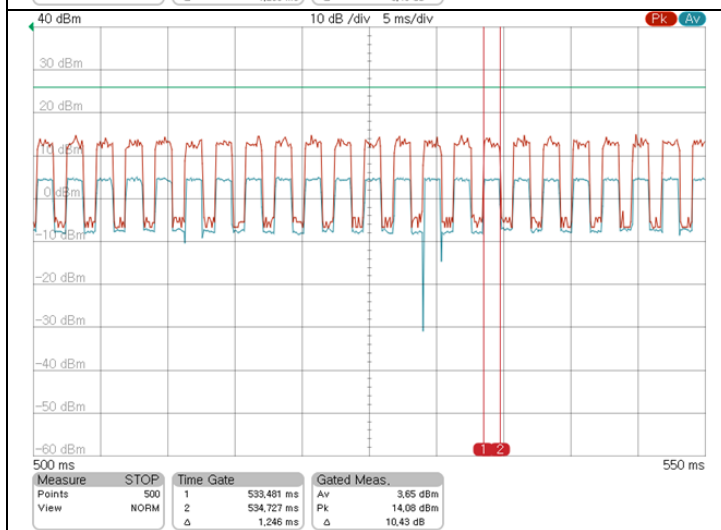
Middle Channel
_37 RU



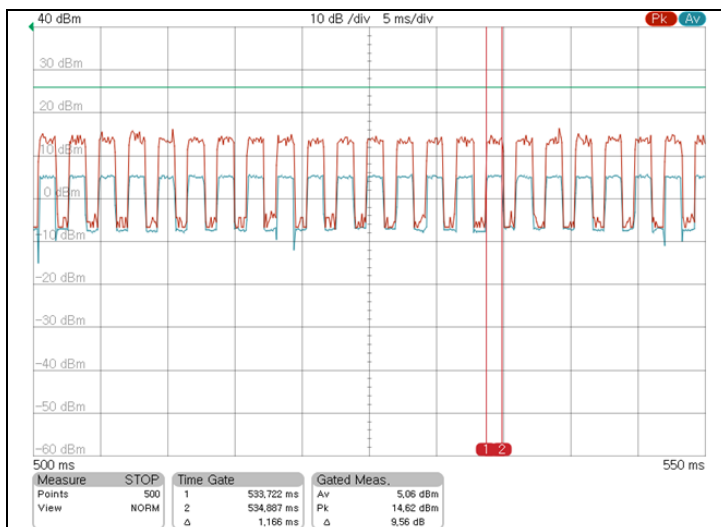
Middle Channel
_38 RU



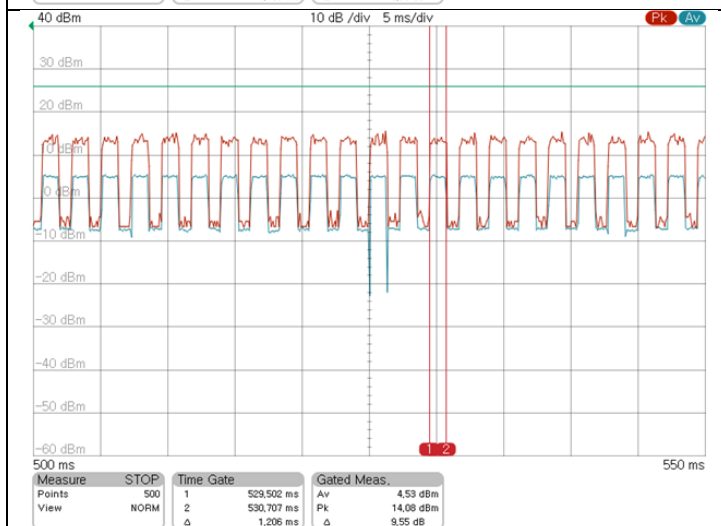
Middle Channel
_40 RU



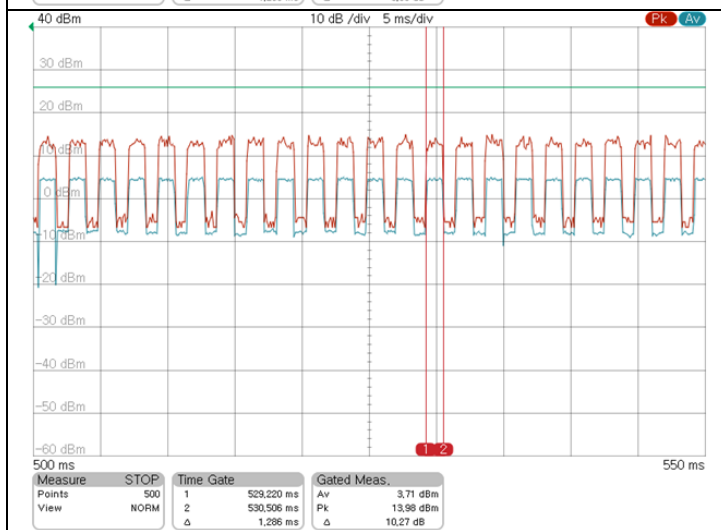
High Channel
_37 RU



High Channel
_38 RU

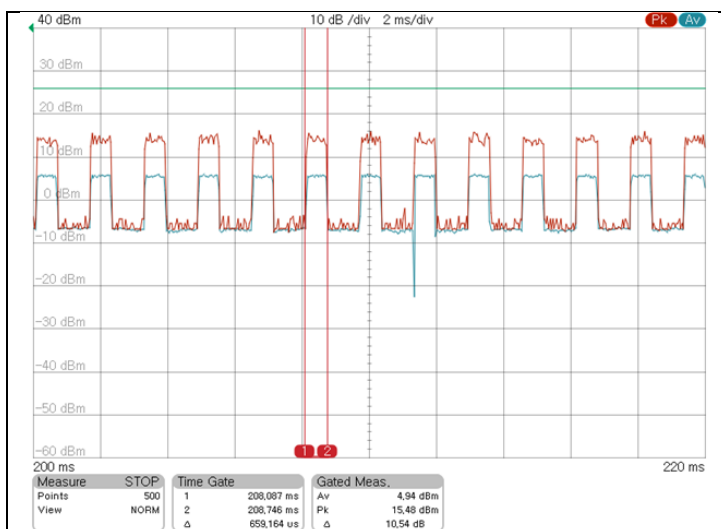


High Channel
_40 RU

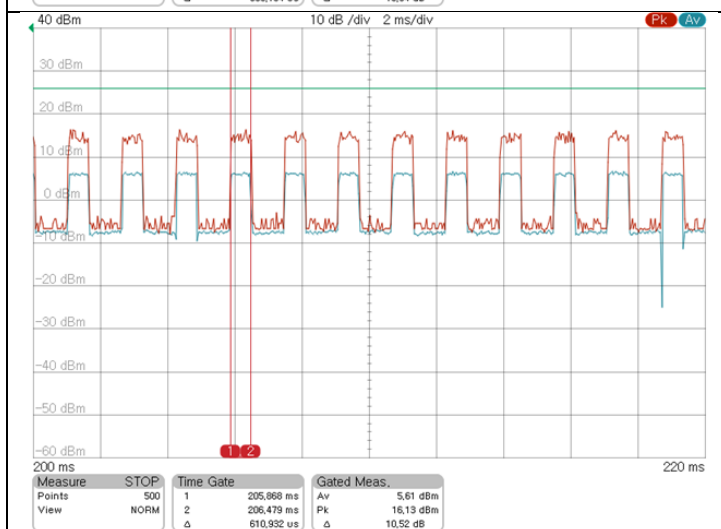


11ax_HE20_106T

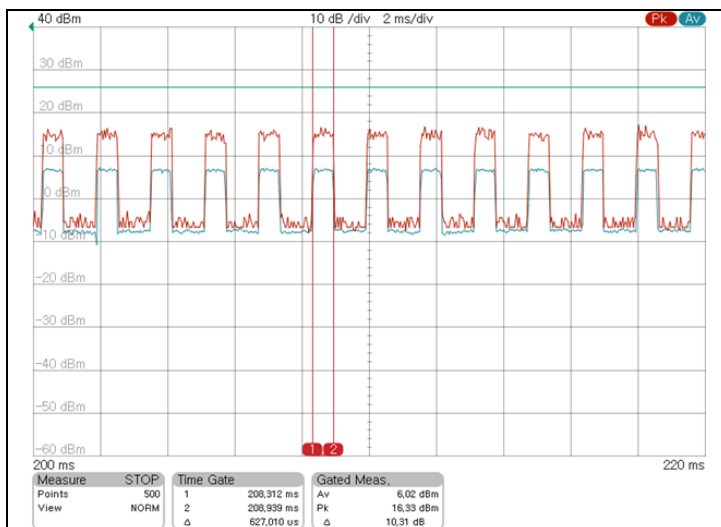
Low Channel
_53 RU



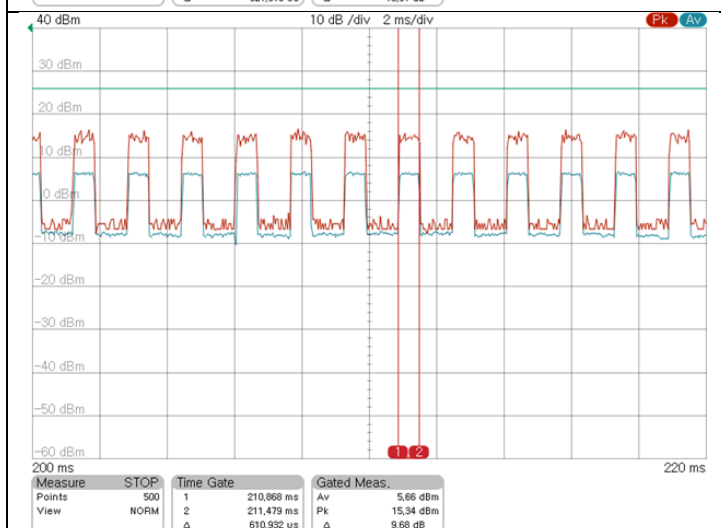
Low Channel
_54 RU



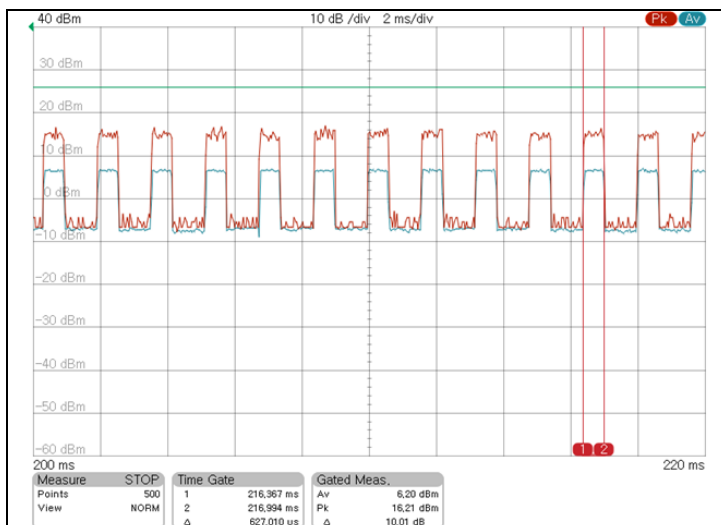
Middle Channel
_53 RU



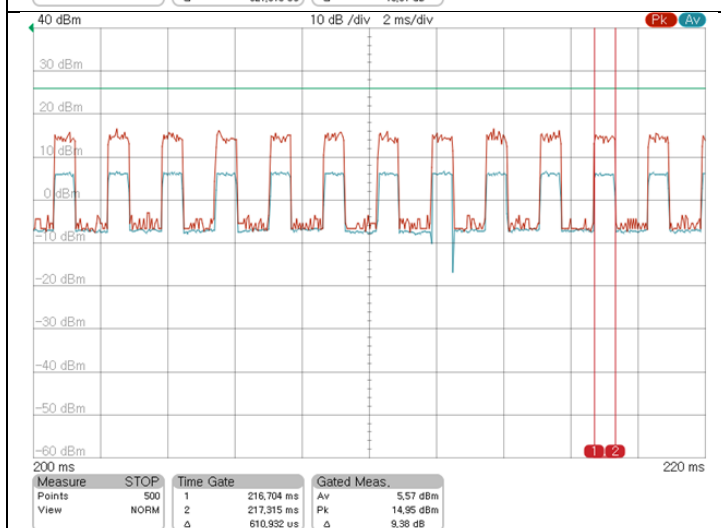
Middle Channel
_54 RU



High Channel
_53 RU

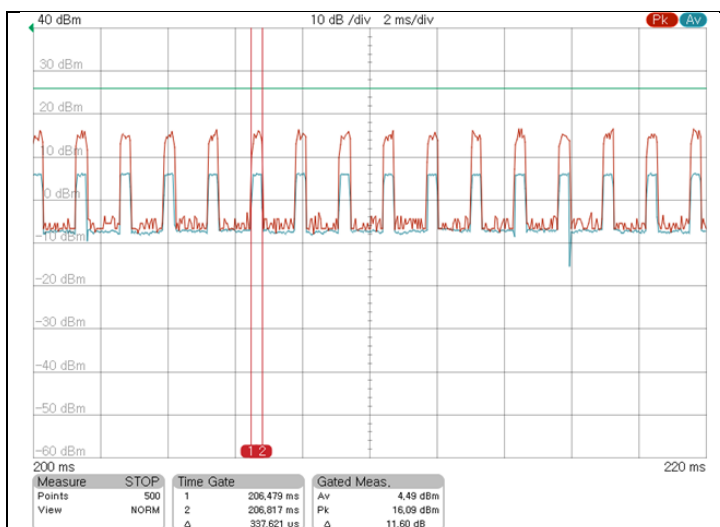


High Channel
_54 RU

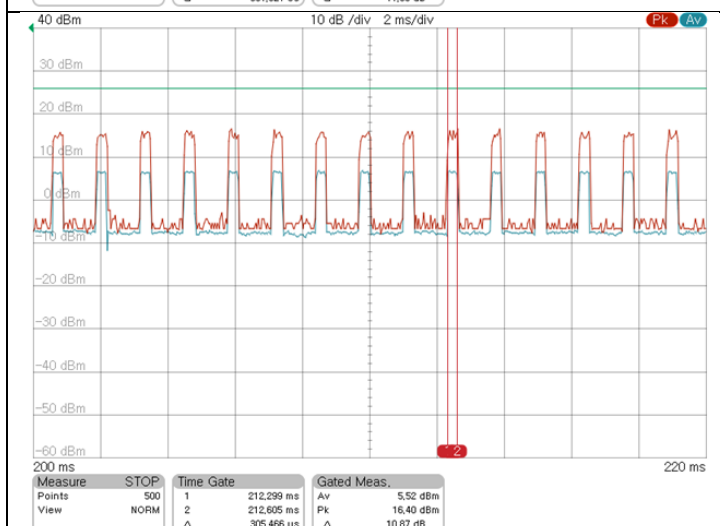


11ax_HE20_242T

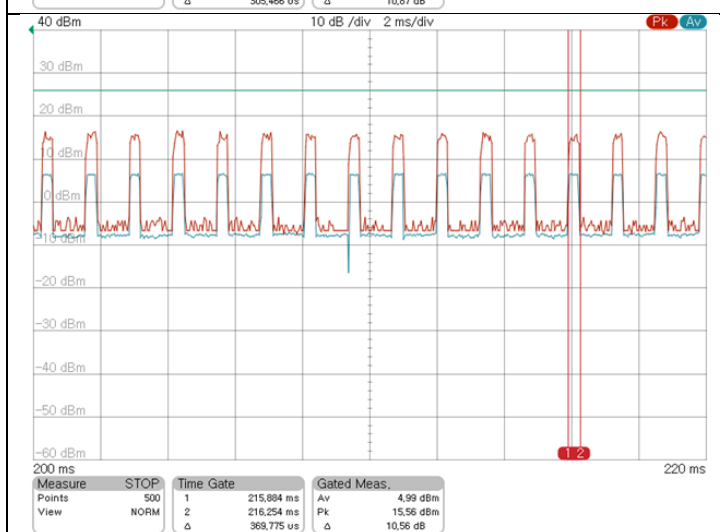
Low Channel
_61 RU



Middle Channel
_61 RU

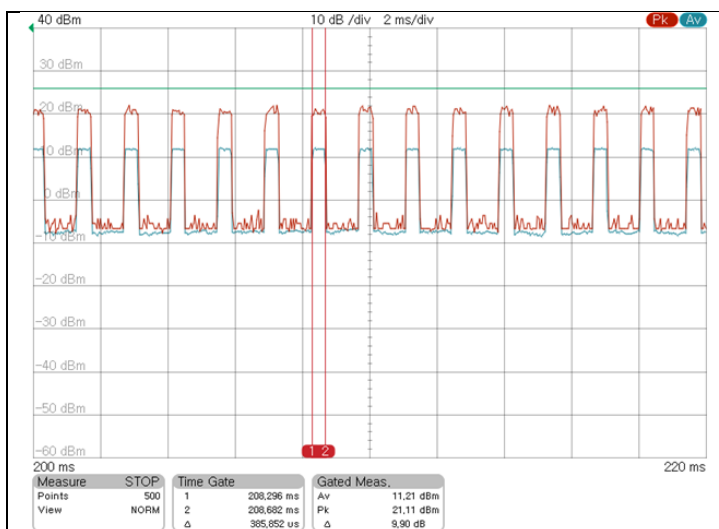


High Channel
_61 RU

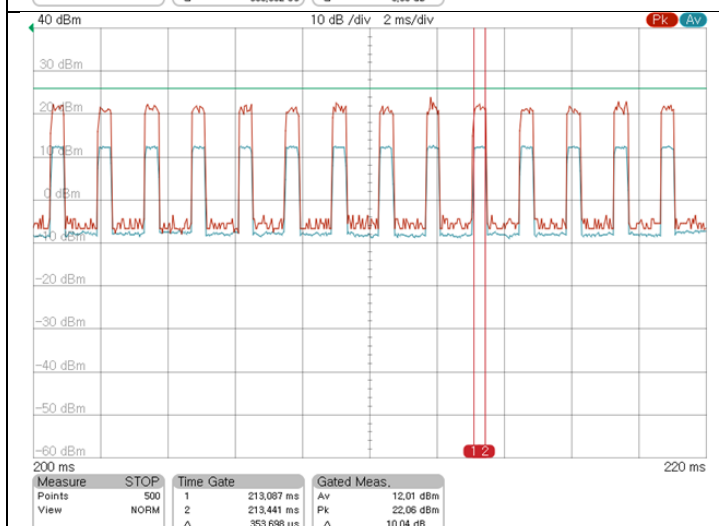


11ax_HE20_SU

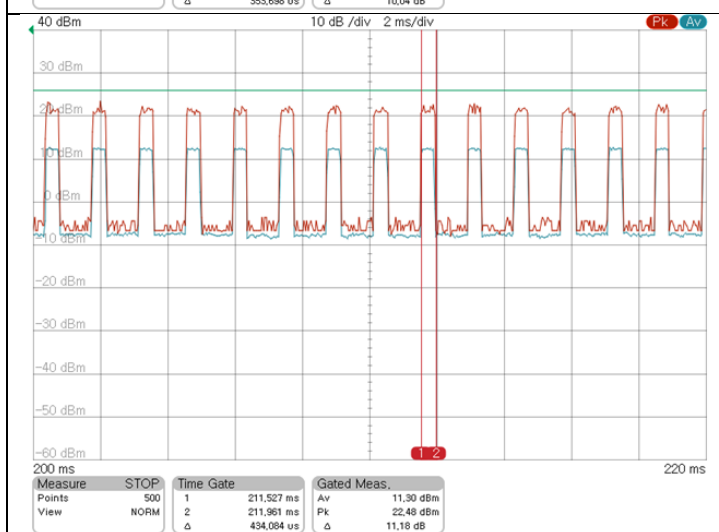
Low Channel



Middle Channel



High Channel



5. Power Spectral Density

5.1. Test Setup



5.2. Limit

According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

5.3. Test Procedure

The measurements are recorded using the PKPSD measurement procedure in section 11.10.2 of ANSI C63.10-2020.

- The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and is optional if the maximum conducted (average) output power was used to determine compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span > 1.5 times the DTS bandwidth.
3. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq [3 \times \text{RBW}]$.
5. Detector = peak.
6. Sweep time = No faster than coupled (auto) time.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

Note;

- For test plots, the reading values shown in plots were final results because all path loss of the cable and attenuator were investigated and compensated to spectrum analyzer as TDF function.

5.4. Test Results

Ambient temperature : (23 ± 1) °C

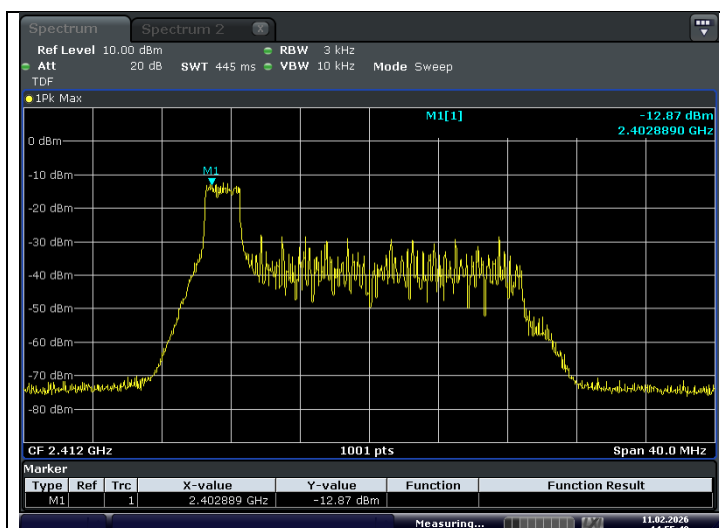
Relative humidity : 47 %

11ax_HE20						
Ch.	Freq.	Tones	Measured PSD (dB m/3 kHz)			Limit (dB m/3 kHz)
			RU Index			
			Low	Middle	High	
Low	2 412	26T	-12.87	-12.23	-12.53	8
Mid	2 437	26T	-11.10	-12.64	-12.37	
High	2 462	26T	-9.90	-11.37	-12.90	
11ax_HE20						
Ch.	Freq.	Tones	Measured PSD (dB m/3 kHz)			Limit (dB m/3 kHz)
			RU Index			
			Low	Middle	High	
Low	2 412	52T	-14.70	-14.31	-13.25	8
Mid	2 437	52T	-13.50	-13.67	-14.95	
High	2 462	52T	-14.95	-13.85	-14.68	
11ax_HE20						
Ch.	Freq.	Tones	Measured PSD (dB m/3 kHz)			Limit (dB m/3 kHz)
			RU Index			
			Low	Middle	High	
Low	2 412	106T	-15.72	-	-15.79	8
Mid	2 437	106T	-15.47	-	-16.96	
High	2 462	106T	-16.00	-	-15.67	
11ax_HE20						
Ch.	Freq.	Tones	Measured PSD (dB m/3 kHz)			Limit (dB m/3 kHz)
			RU Index			
			Low	Middle	High	
Low	2 412	242T	-	-19.53	-	8
Mid	2 437	242T	-	-19.90	-	
High	2 462	242T	-	-20.03	-	
11ax_HE20						
Ch.	Freq.	Tones	Measured PSD (dB m/3 kHz)			Limit (dB m/3 kHz)
			RU Index			
			Low	Middle	High	
Low	2 412	SU	-	-14.48	-	8
Mid	2 437	SU	-	-13.62	-	
High	2 462	SU	-	-14.06	-	

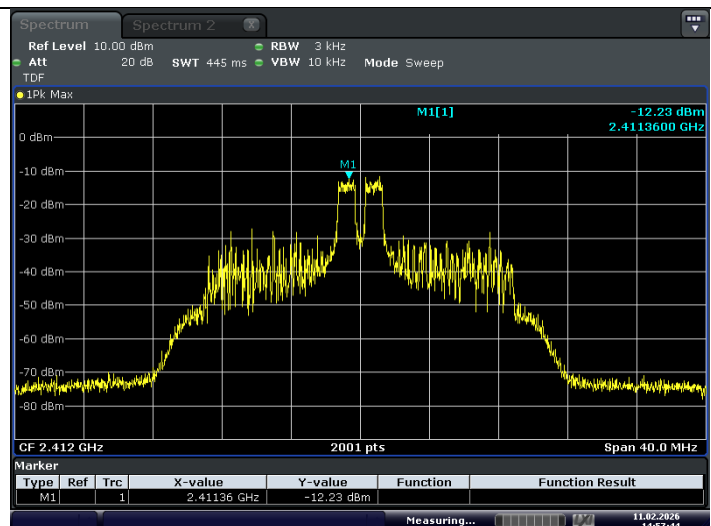
Test plots

11ax_HE20_26T

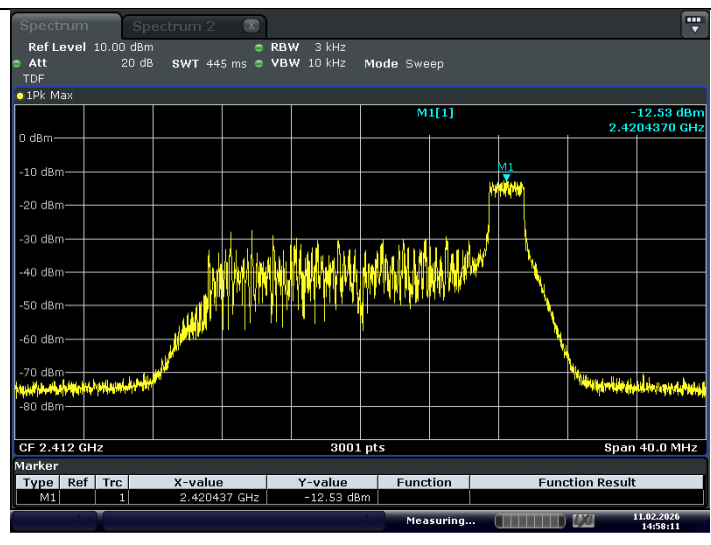
Low Channel
_0 RU



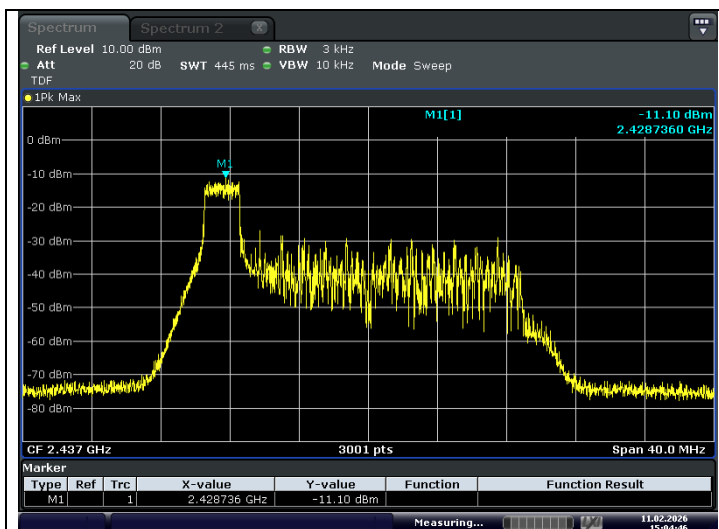
Low Channel
_4 RU



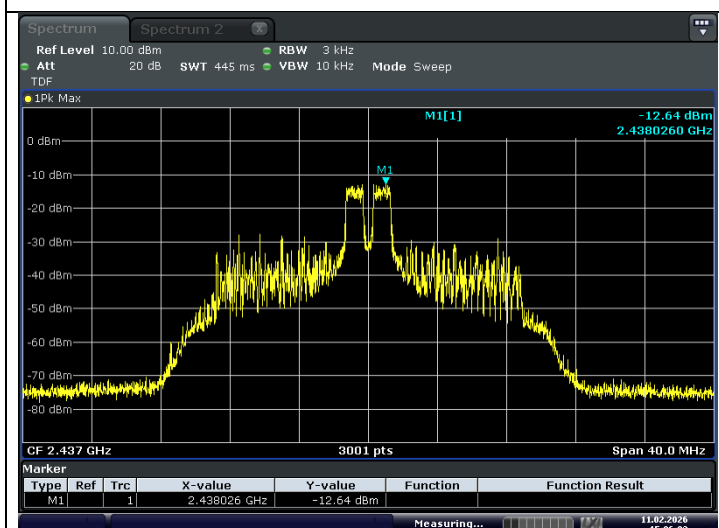
Low Channel
_8 RU



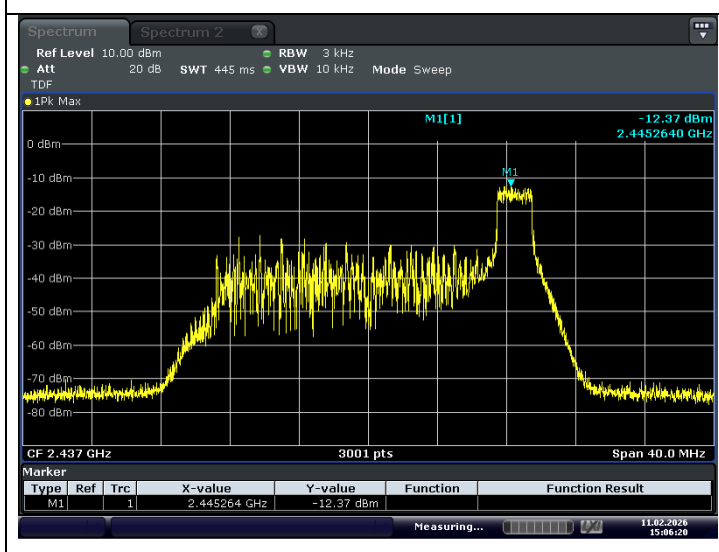
Middle Channel
_0 RU



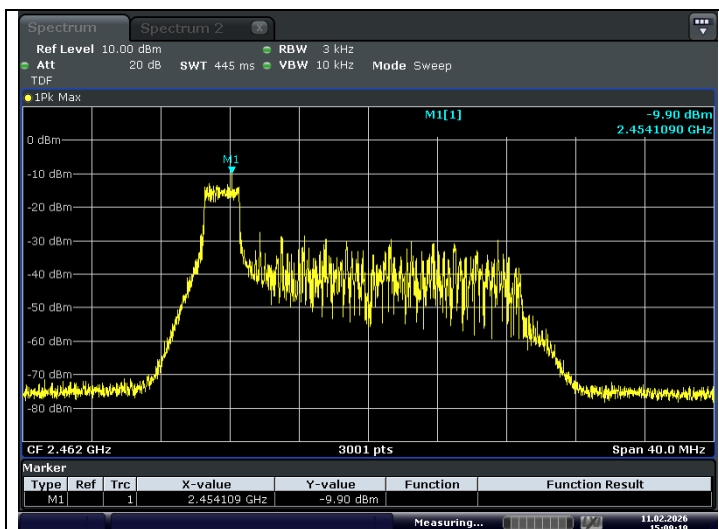
Middle Channel
_4 RU



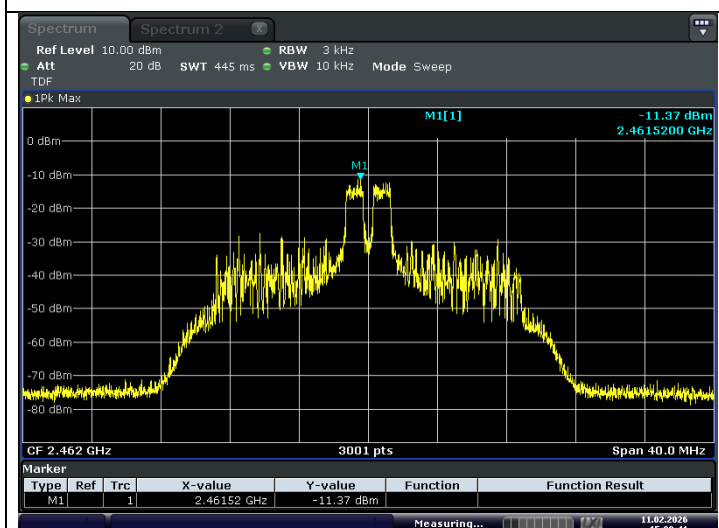
Middle Channel
_8 RU



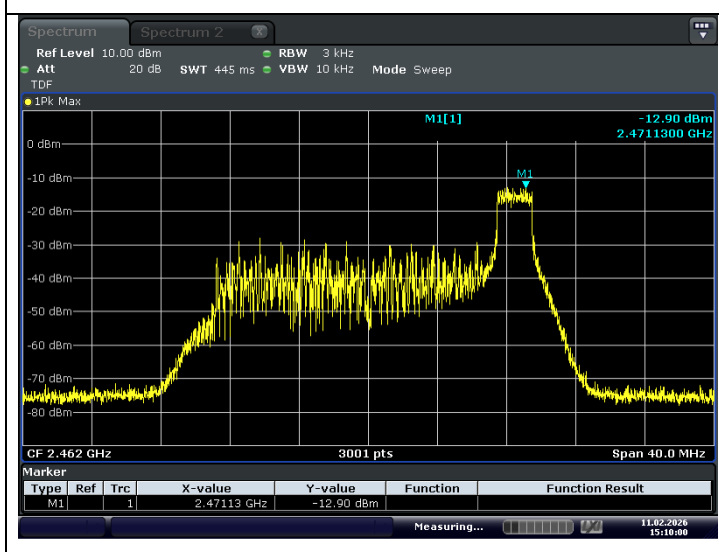
High Channel
_0 RU



High Channel
_4 RU

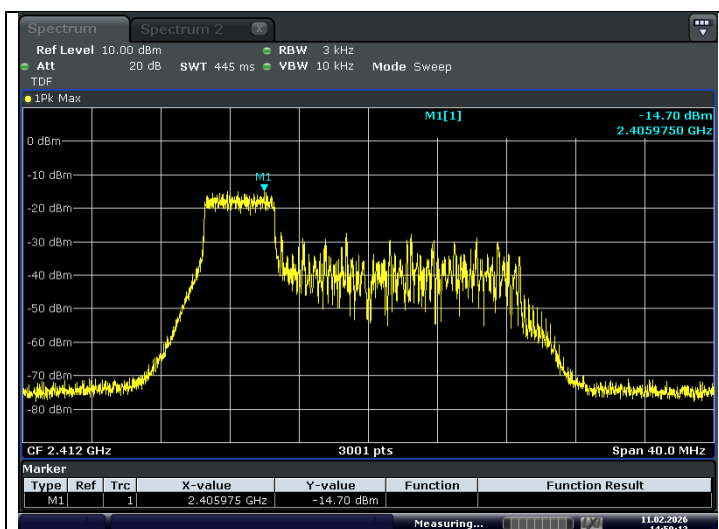


High Channel
_8 RU

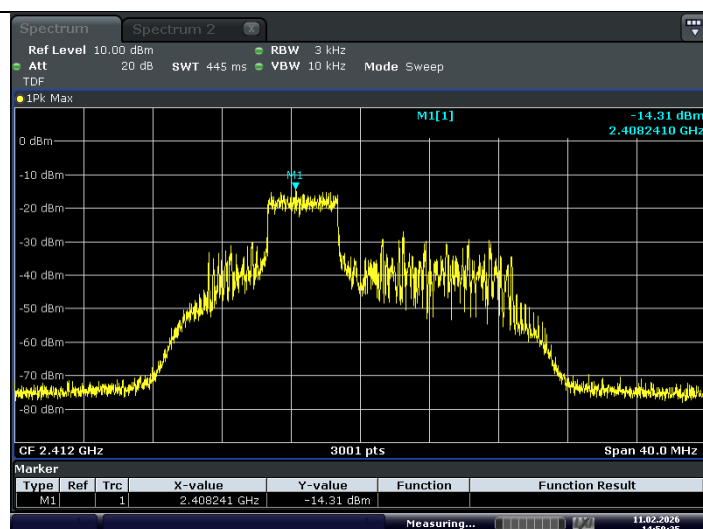


11ax_HE20_52T

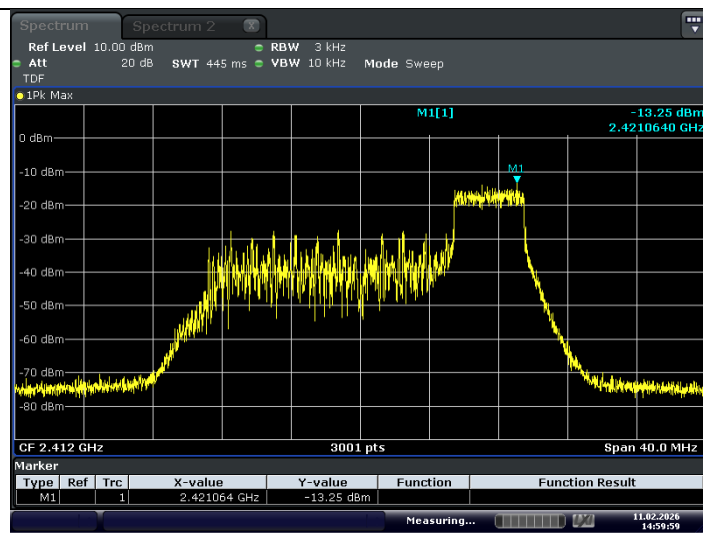
Low Channel
_37 RU



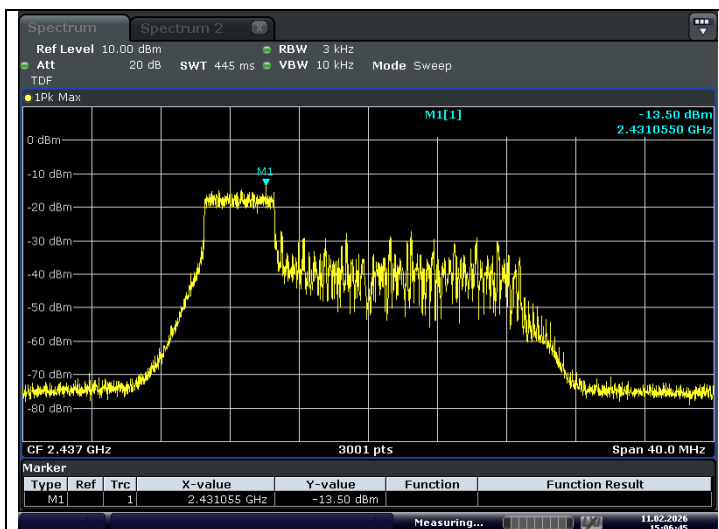
Low Channel
_38 RU



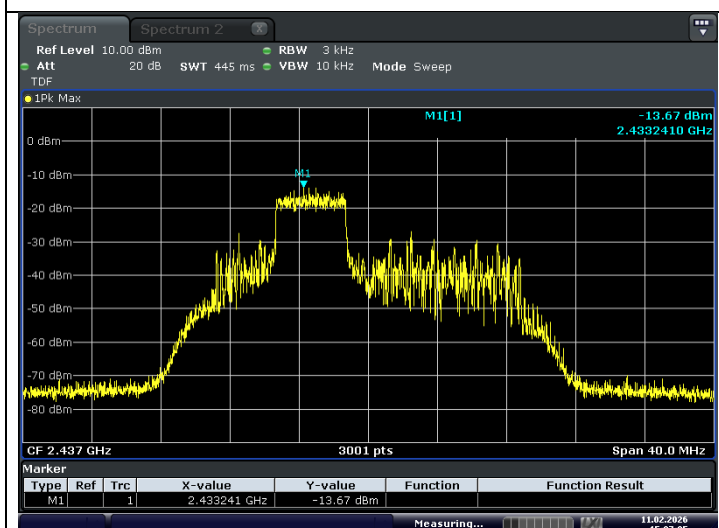
Low Channel
_40 RU



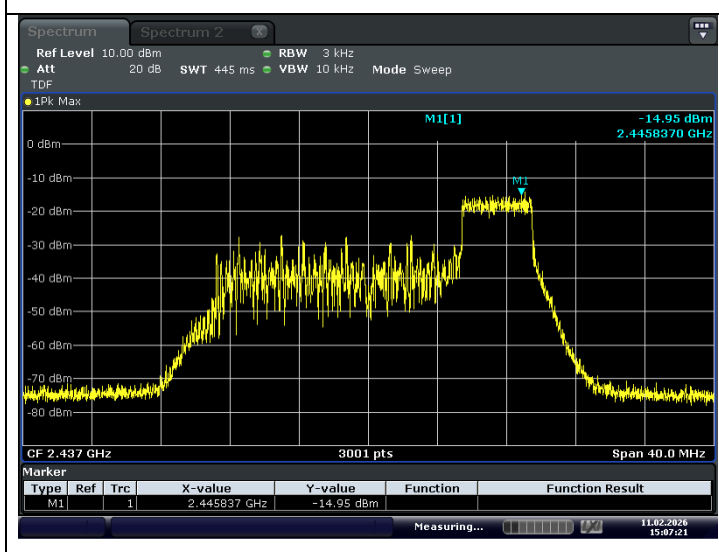
Middle Channel
_37 RU



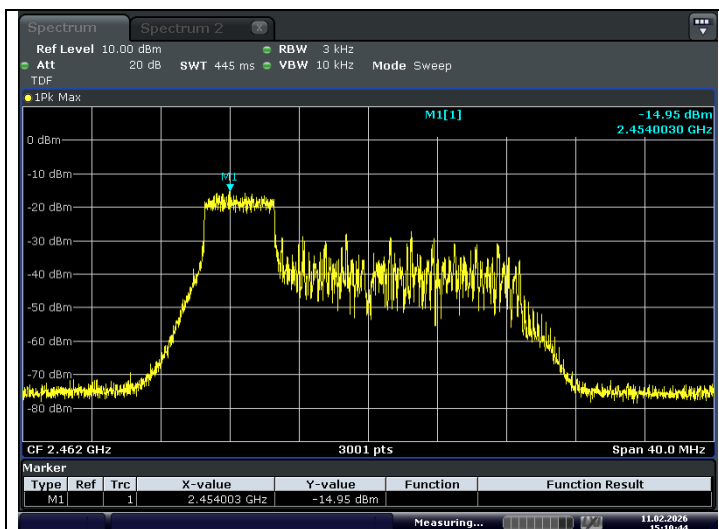
Middle Channel
_38 RU



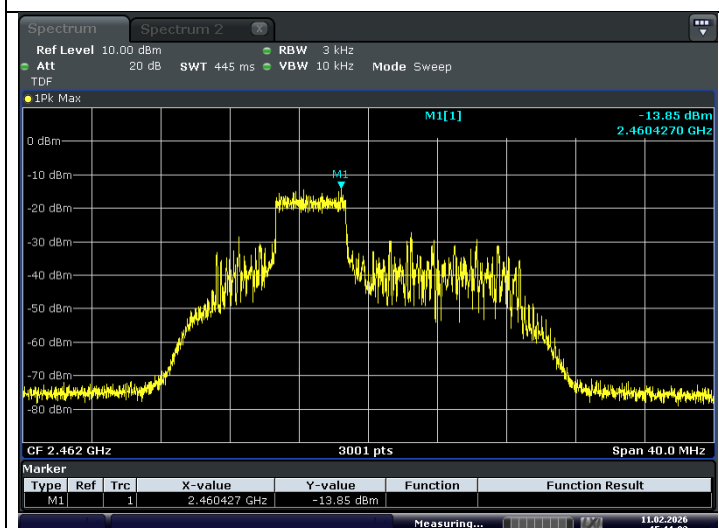
Middle Channel
_40 RU



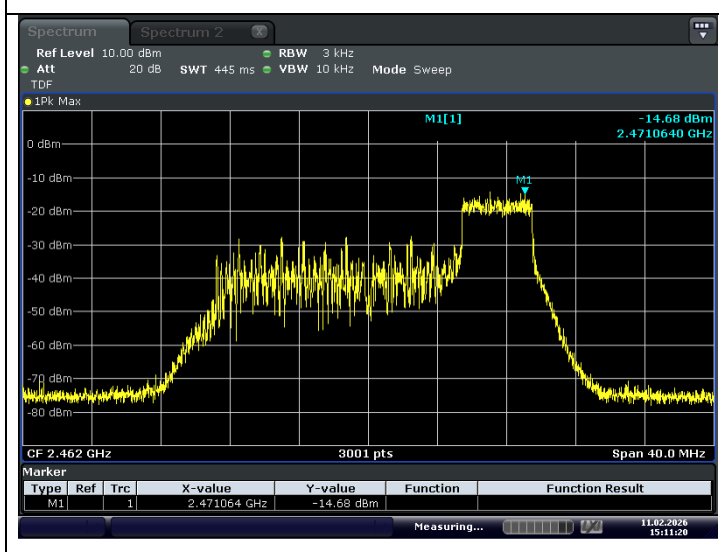
High Channel
_37 RU



High Channel
_38 RU

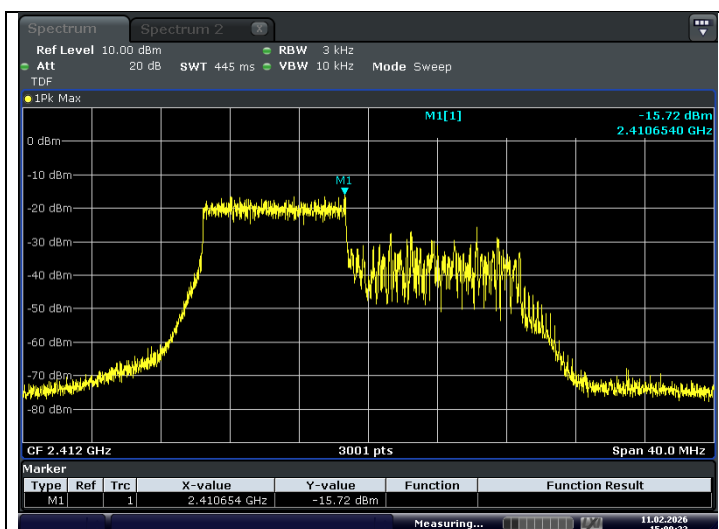


High Channel
_40 RU

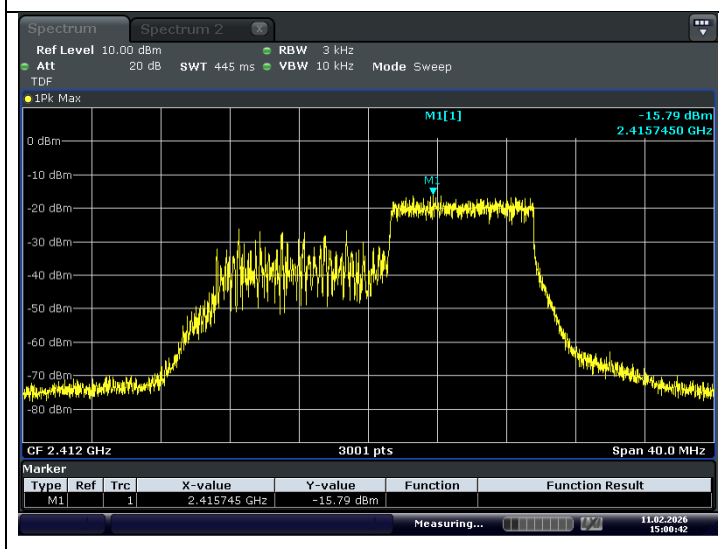


11ax_HE20_106T

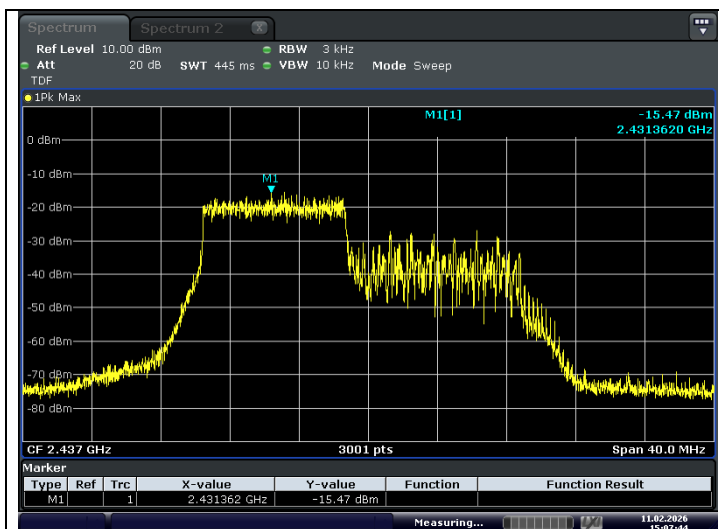
Low Channel
_53 RU



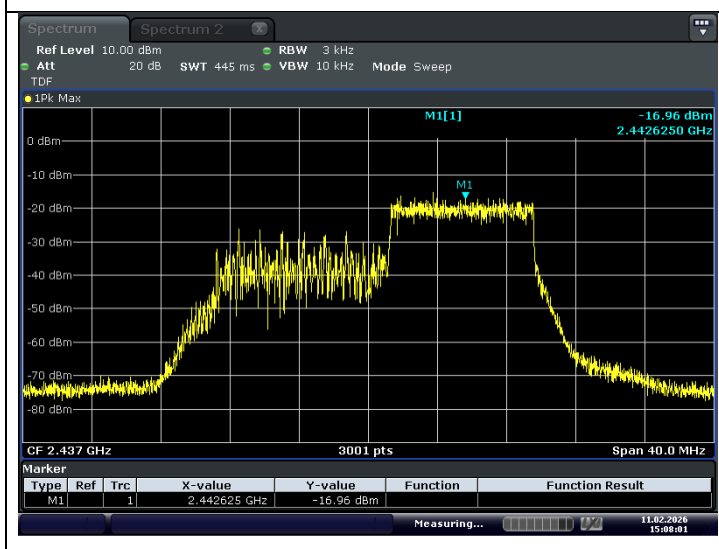
Low Channel
_54 RU



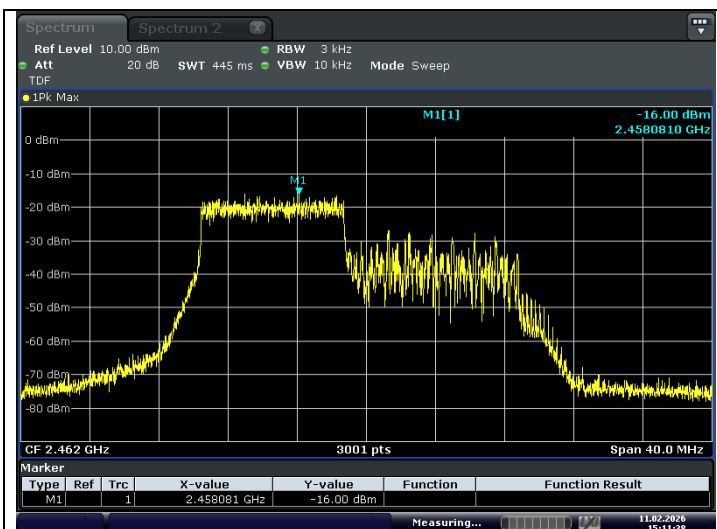
Middle Channel
_53 RU



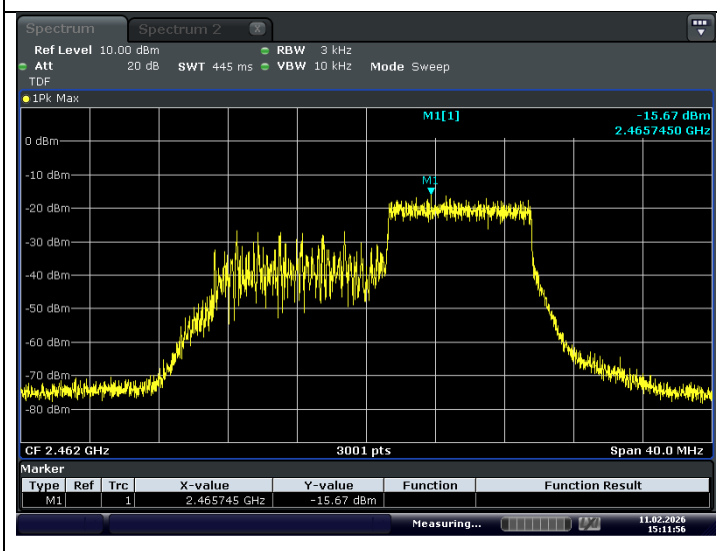
Middle Channel
_54 RU



High Channel
_53 RU

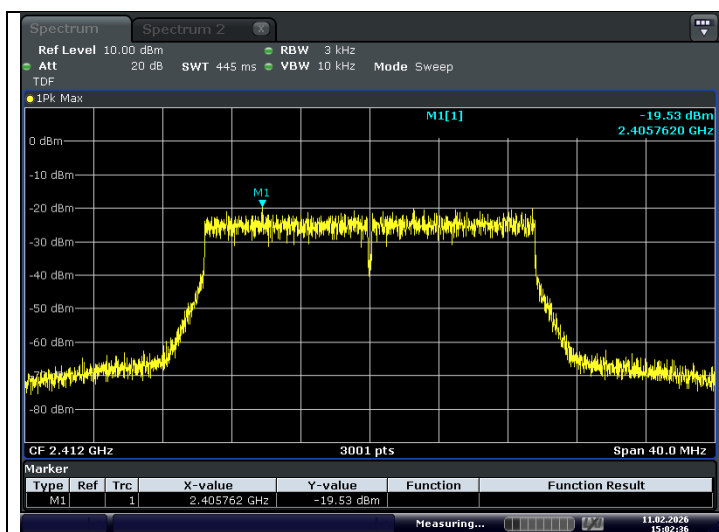


High Channel
_54 RU

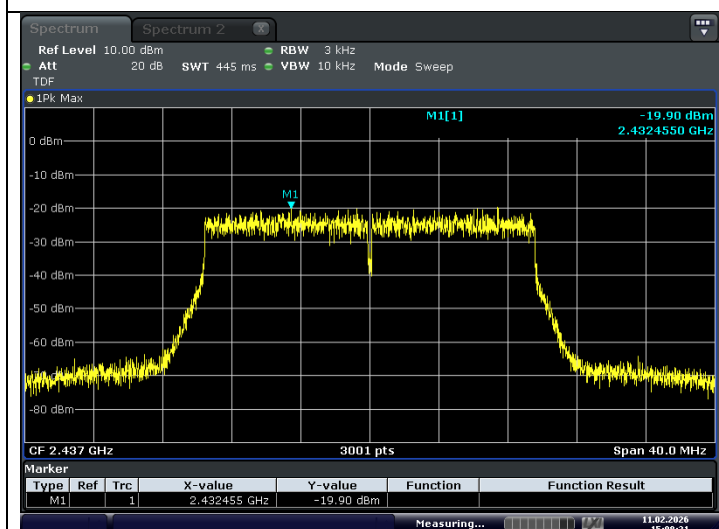


11ax_HE20_242T

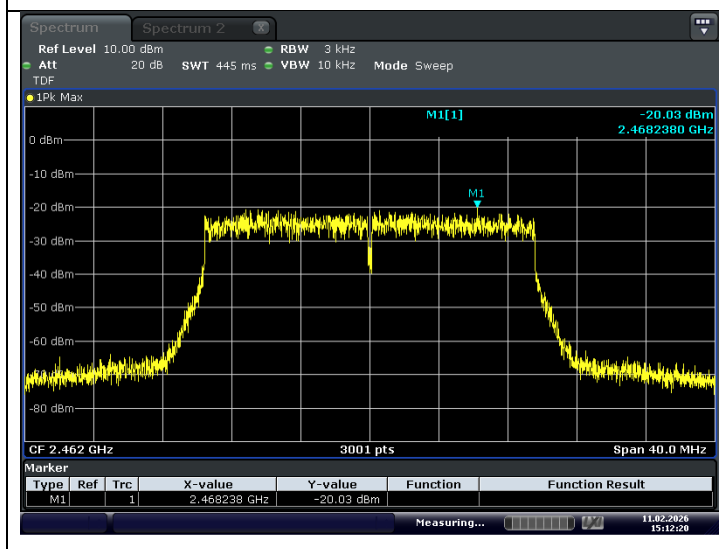
Low Channel
_61 RU



Middle Channel
_61 RU

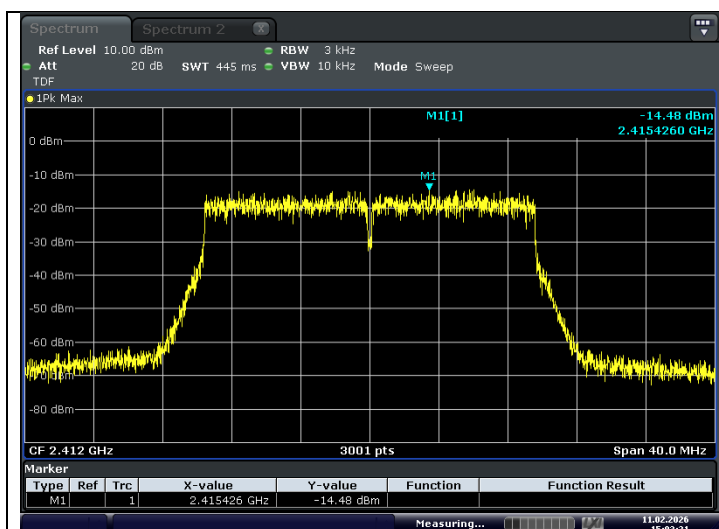


High Channel
_61 RU

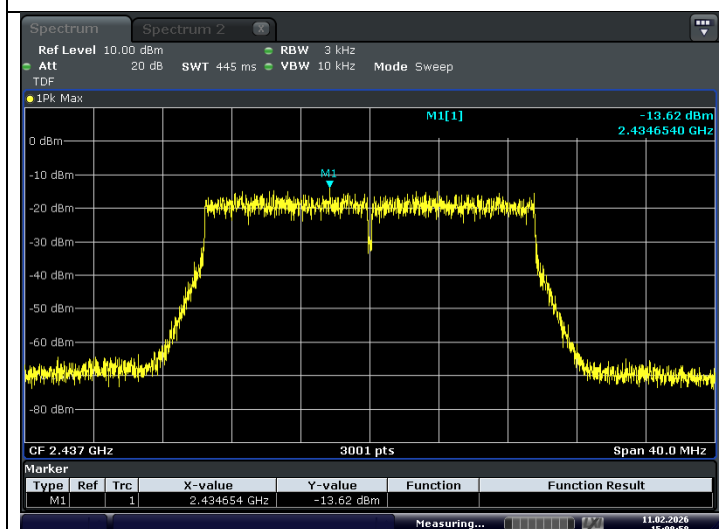


11ax_HE20_SU

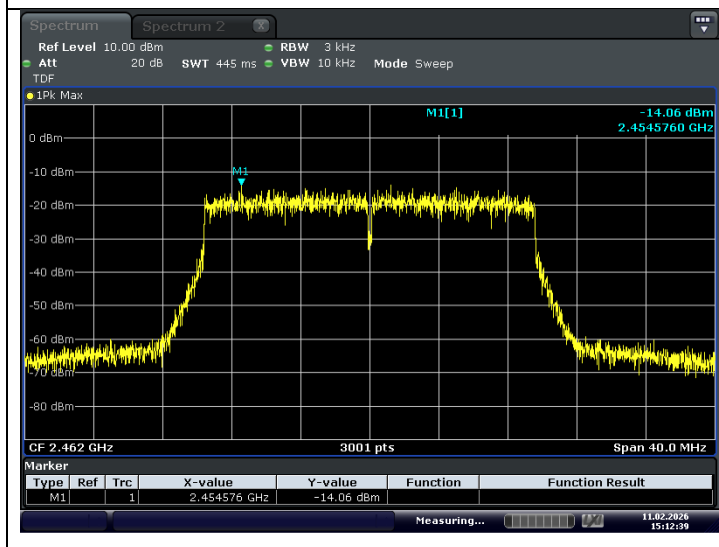
Low Channel



Middle Channel



High Channel



6. Antenna Requirement

6.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded. And according to FCC 47 CFR Section §15.247(b) if transmitting antennas of directional gain greater than 6 dB i are used, the conducted output power shall be reduced appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dB i.

6.2. Antenna Connected Construction

Antenna used in this product is PCB Pattern Antenna with gain of -0.20 dB i.

- End of the Test Report -