

Annex E – Spurious Emissions 15.209

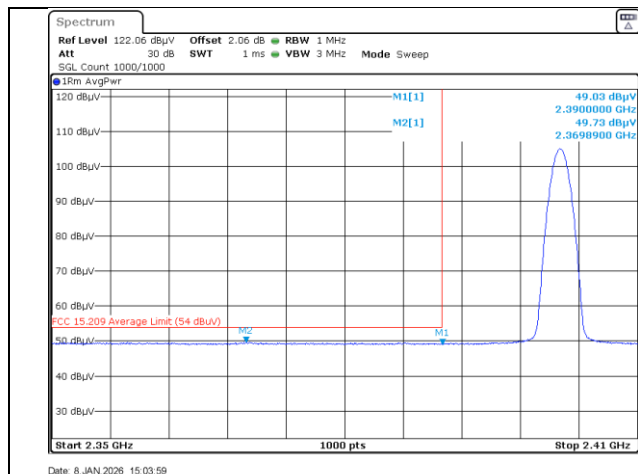
Note: below measurements are in units of dBuV/m at 3meters. These measurements are performed conducted in lieu of radiated as permitted by ANSI C63.10-2020. The following formula was used in making such conversions:

Above 1GHz: $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{m}]) + 104.77$, where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements. $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2$, for $d = 3 \text{ m}$. Straight conversion between $E[\text{dB}\mu\text{V}]$ and $\text{EIRP}[\text{dBm}] = 107$. Thus offset for dBuV/m at 3meters is $95.2 - 107 + \text{antenna gain}$.

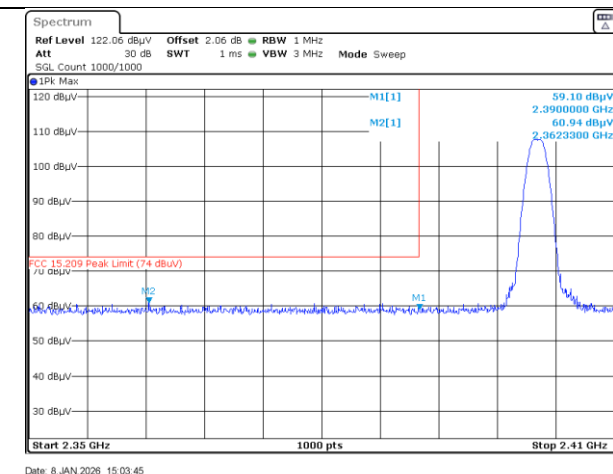
Note: additional factors added to offset to consider attenuator + cable loss.

Naming Convention

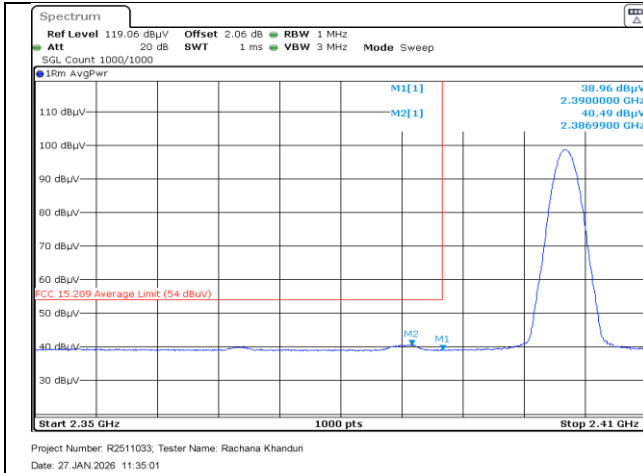
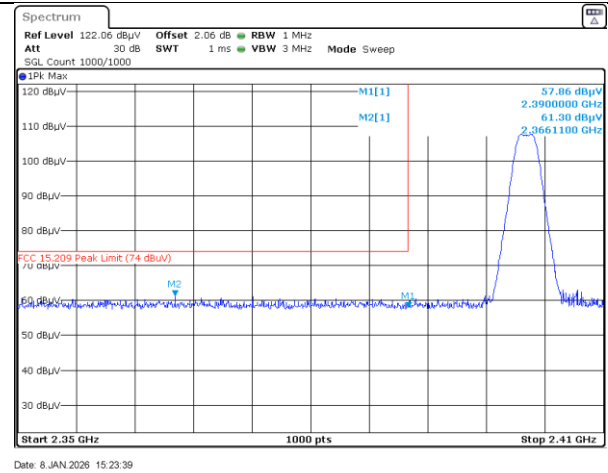
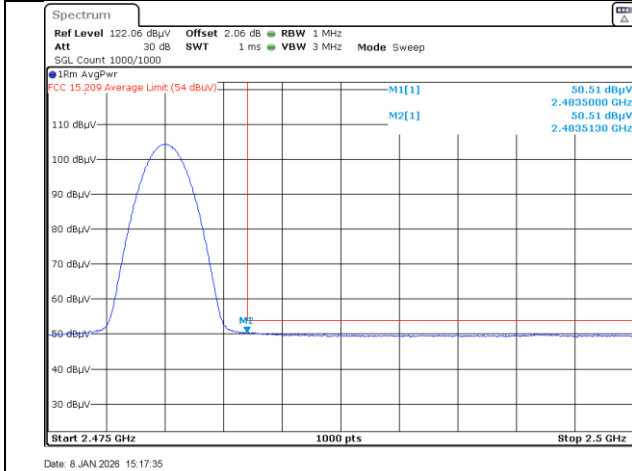
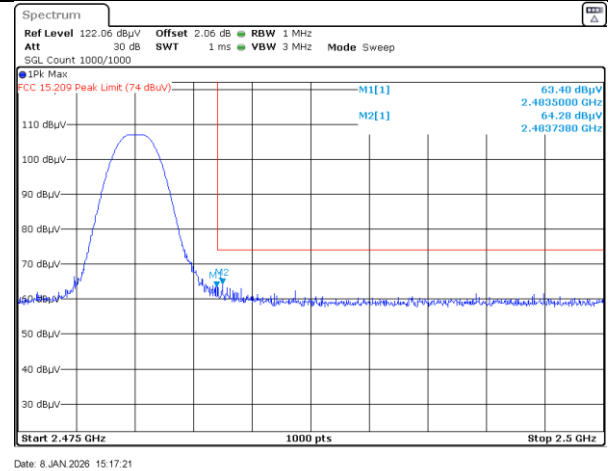
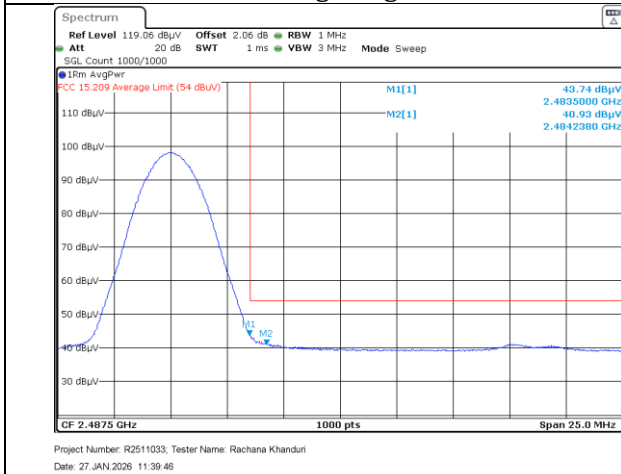
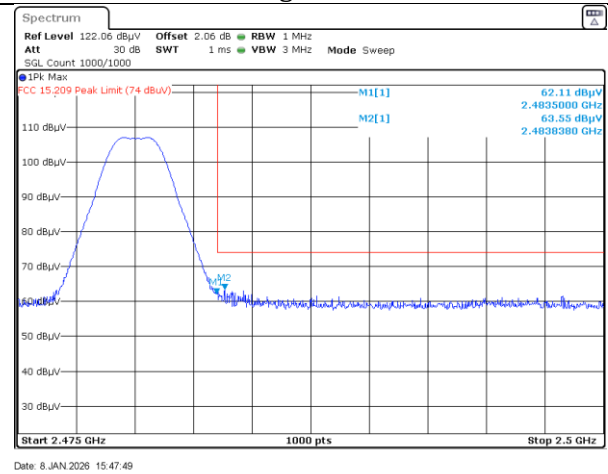
Radio (BLE)_Channel (Low Ch, Mid Ch, High Ch)_Frequency (MHz)_Rate/Mode(Mbit)_Measurement (15.209)_Range (MHz, Lower Band Edge, Upper Band Edge, Peak, Avg)



BLE_Low Ch_2402MHz_1MBit_15.209_Lower Band Edge Avg



BLE_Low Ch_2402MHz_1MBit_15.209_Lower Band Edge Peak

BLE_Low Ch_2402MHz_2MBit_15.209_Lower Band
Edge AvgBLE_Low Ch_2402MHz_2MBit_15.209_Lower Band
Edge PeakBLE_High Ch_2480MHz_1MBit_15.209_Upper Band
Edge AvgBLE_High Ch_2480MHz_1MBit_15.209_Upper Band
Edge PeakBLE_High Ch_2480MHz_2MBit_15.209_Upper Band
Edge AvgBLE_High Ch_2480MHz_2MBit_15.209_Upper Band
Edge Peak

The below table applies an additional Duty Cycle Correction Factor (DCCF) to the above Average Band Edge measurements in order to accurately compare to the appropriate limit.

Radio	Frequency (MHz)	Configuration	BE (dBuV/m @3m)	BE Final (dBuV/m @3m)	Limit (dBuV/m @3m)	Margin (dB)
2.4 GHz BLE	2402	1 Mbps	49.73	51.91	54	-2.09
	2480		50.51	52.69	54	-1.31
	2402	2 Mbps	40.49	45.58	54	-8.42
	2480		43.74	48.83	54	-5.17

Note: BE = Corrected Band Edge average measurement prior to applying DCCF.

Note: BE Final [dBuV/m@3m] = BE + DCCF