

Is the Andover, MA location part of your application?

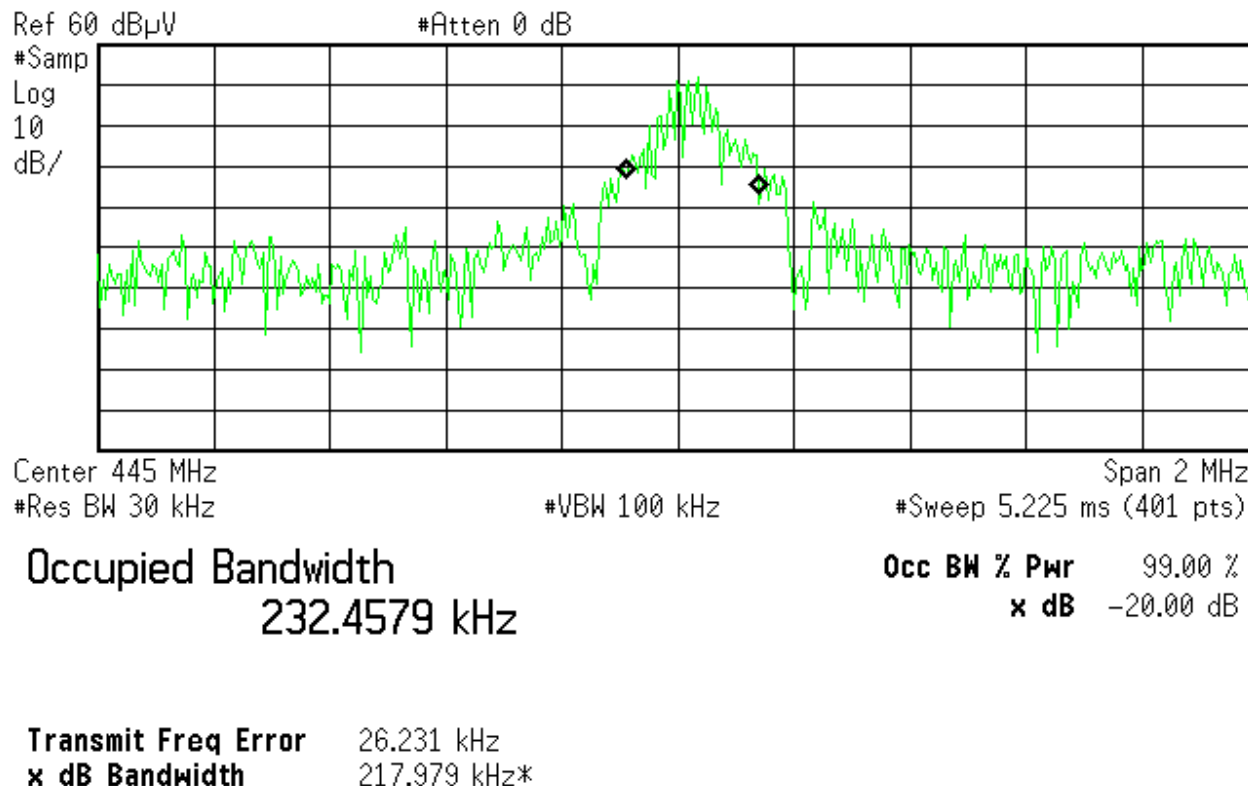
Andover, MA is our corporate office and test facility. It has a valid license that remains in use. Lincoln, RI is an operating test site with National Grid. It also has a valid license that remains in use. Burrillville, RI is a back up site for 15.31(d) field testing; however it is not yet active pending discussion on the suitability of Lincoln as the sole location for field testing of EMC. The present application is in addition to these and is for another utility to evaluate the technology.

Please confirm the correct emission designator.

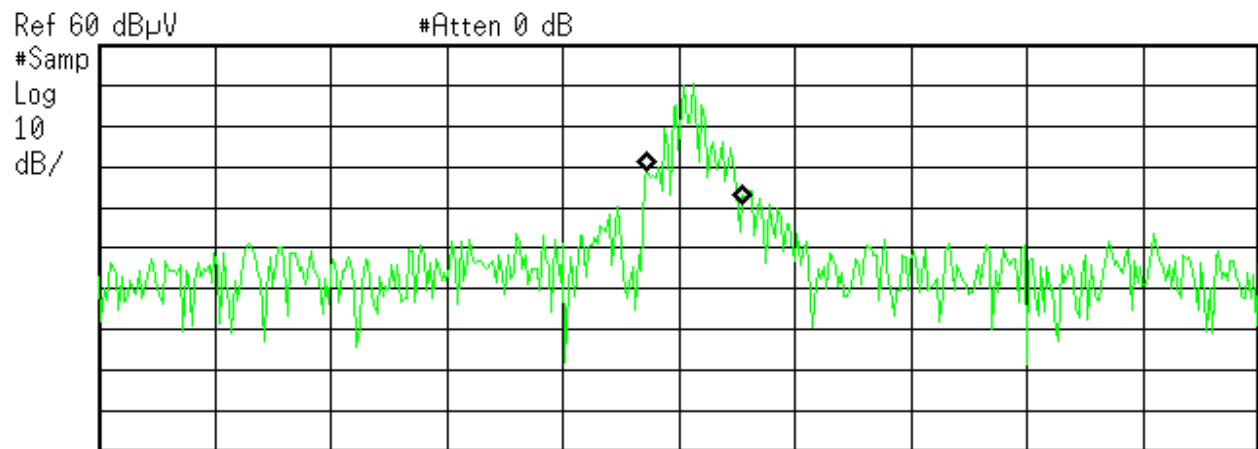
The designator was previously submitted as 300KP1N. When asked to justify it for Burrillville, I realized that 300KP1A was a better description.

300K:

The instantaneous emission bandwidth, obtained by Curtis Strauss LLC during EN300-220 compliance certification and preliminary 15.231.e screening was under 300KHz, rounding up the largest measured occupied bandwidth (275.3 MHz). The pulse shape is generated by a radio frequency application specific integrated circuit and is hard coded to the application. My understanding is that the necessary bandwidth is the occupied bandwidth.



High end (445 MHz)



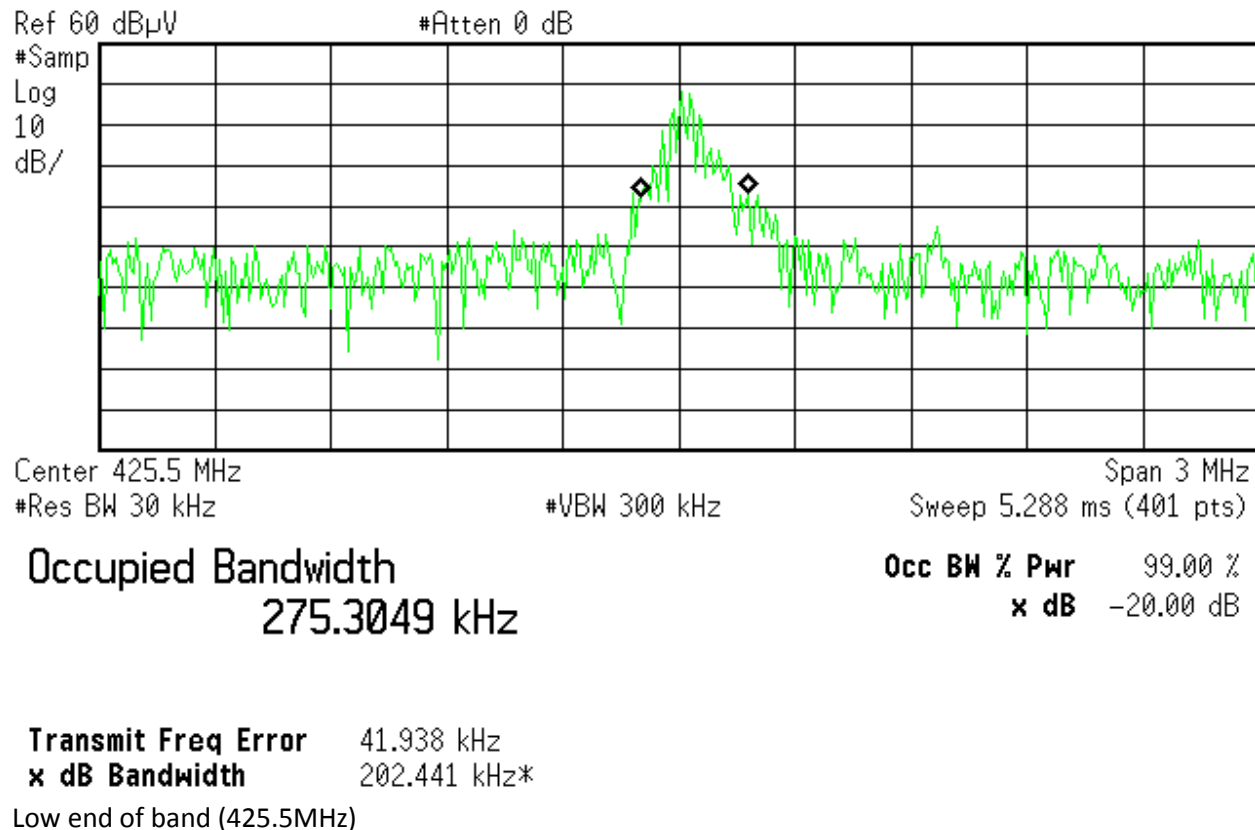
#Res BW 30 kHz #VBW 300 kHz Span 3 MHz Sweep 5.288 ms (401 pts)

Occupied Bandwidth
243.9375 kHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error 41.169 kHz
x dB Bandwidth 185.485 kHz*

Center band (433.9MHz)



This data was obtained by executing a diagnostic “pulse train”, which continuously emits 16 μ s Gaussian envelope modulated pulses of the center frequency at 42 μ s periodicity. In practice the device emits a series of 20 such pulses, followed by approximately ~90 μ s of silence while discrete Fourier transforms are calculated. This process occupies about 910 μ s and allows the system to evaluate a single interrogation frequency.

Types of Modulation of the Main Carrier: P

The RF signal is modulated by a sequence of uniform pulses. The Gaussian shape of the pulse is constant to minimize occupied bandwidth.

The pulse width is constant to match the main frequency content to the resonance width of a 433MHz SAW resonator with an unloaded Q of > 10,000 (43KHz). The amplitudes of the pulses are unmodulated, although there is a slow variation for automatic level control in which the amplitude is reduced from 10mW peak to attain a target receive signal from the echoes.

The position and phase of the pulses is constant within a group of 20, allowing for coherent accumulation of the passive sensor echoes.

No other modulation exists.

Nature of Signal(s) Modulating the Main Carrier: 1

I considered the use of “0” or “X” since the pulses carry no information; however there is a single “channel” with smoother on/off modulation. Therefore, I felt that “1” was the best fit since “P” was selected instead of “N” above.

Types of Modulation of the Main Carrier: A

There is no information modulation, so I selected N in my first submission. There is AM, so there must be sidebands. There is no sideband cancellation, so it is double sideband. In the most recent submission (National Grid, Burrillville, RI) the consistent designation was determined to be **300KP1A**.