ROOM ALERT MAX • WIRELESS PERFORMANCE VALIDATION

Real buildings. Measured results.

Room Alert MAX wireless coverage, modeled in RF modeling software and verified with field measurements in to real facilities – a brick office building and a warehouse full of stacked appliances. So you know what to expect in yours.



10 - 30 m
Expected sensor-to-Base range indoors (30 - 100 ft). Your layout, materials and other RF Systems decide where in that range you land.

–85 dBm
The signal level a MAX sensor needs for a reliable link. Every planned location at AVTECH HQ clears it from one Base.

2 sites
A 3-floor brick office building and an 8,125 sq ft appliance warehouse, modeled and then measured.

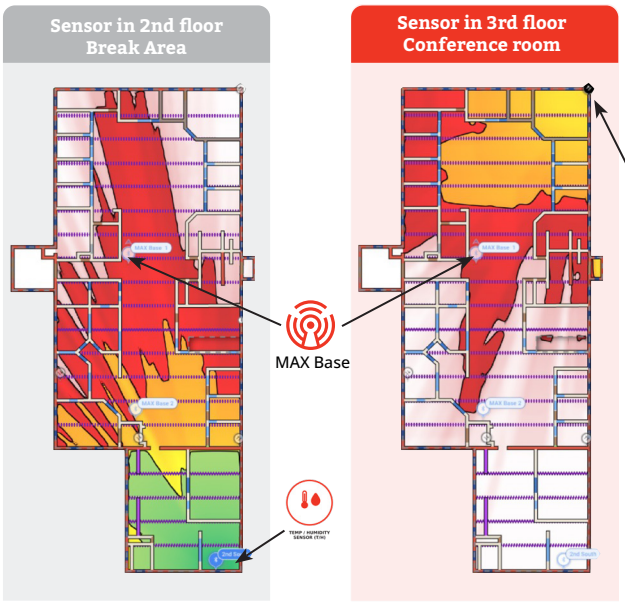
±2–8 dB
How closely predictions matched field measurements in open aisles — close enough to plan with.

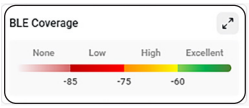
TEST SITE 1

Cutler Mill – Brick Office Building (AVTECH HQ , Warren, RI)

2nd & 3rd FLOOR SHOWN

Built 1868 · brick construction · 3 floors · offices, conference rooms, open work areas, fulfillment / 2nd floor shown



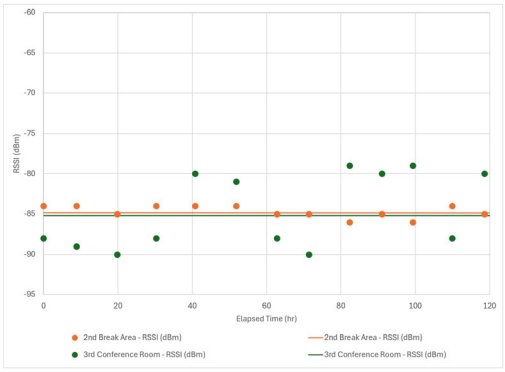


Received signal strength, dBm. Below −85 the link becomes unreliable.

–84.8 / –85.2
dBm measured

At the **conference room** and **break area** — the two farthest planned locations, through brick interior walls. Predicted values matched closely enough to plan with.

Sensor	RSSI Predicted (dBm)	RSSI Measured (dBm)
2nd Break Area	-79	-84.8
3rd Conference Room	-81	-85.2



Same floor, same sensors, same Base Station. Placing the Base in a corner conference room (A) leaves the far end of the floor at the limit; moving it to the central open area (B) puts every planned sensor location above −85 dBm. In the actual installation, a single Base on the 2nd floor connects sensors on all three floors.

Real-world results you can plan with.

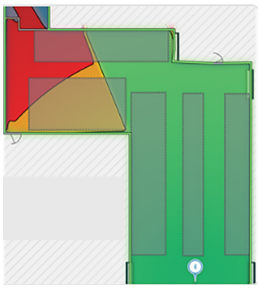
TEST SITE 2

Appliance Warehouse — Real-World RF Pressure Test

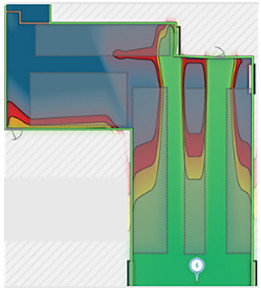
8,125 sq ft · cinder block walls · metal roof · concrete floor · ~15 ft ceiling · appliances stacked 1–3 m in rows · small office

CUSTOMER SITE

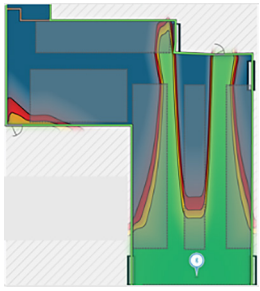
A working distribution warehouse about to receive a Room Alert MAX system — chosen because it is hard, not easy. Stacked metal appliances block and reflect 2.4 GHz signal, exactly what customers meet in warehouses, storage and dense operational spaces. Coverage was modeled at three stack heights, then verified with a BLE signal logger at five points.



Appliances at 1 m — Near line of sight. Strong coverage across the floor.



Appliances at 2 m — Aisles stay strong; signal narrows behind stacks.



Appliances at 3 m — Coverage follows the aisles. Plan sensors in aisles or add a Base.

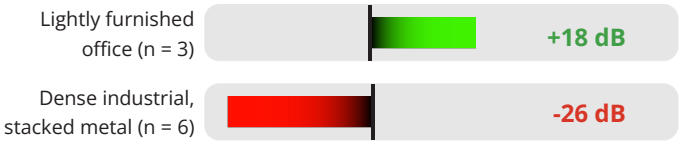
POINT	MEASURED	PREDICTED
1 open aisle	−72.7	−74
2 open aisle	−64.7	−63
3 behind 2 m stack	−82.2	< −98
4 open aisle	−70.6	−63
5 behind stacks	−90.0	< −98

In the open, predictions landed within 2–8 dB of measurement. Behind metal stacks the model is conservative — real signal was better than predicted because the model does not count reflections. Point 5 shows why margin matters: −90 dBm is below the reliable threshold.

What planning caught. The customer needed temperature in a small office (frozen-pipe risk), door sensors, and airflow or current sensing tied to the doors. A first pass put the Base on the main floor; a closer look showed the office sensor shadowed by stacked appliances. The fix: a Wired Sensor Adapter mounted near the ceiling just outside the office, with a wired sensor running inside — extending wireless reach without moving the Base. One practical constraint surfaced too: the building has few electrical outlets, and Wired Sensor Adapters need power. That is exactly the kind of detail the Site Readiness Checklist asks for up front.

WHY RANGE IS A RANGE, NOT A NUMBER

At 30 m (100 ft), the same Room Alert MAX link has very different headroom depending on what is in the way. Positive margin means a reliable link with room to spare; negative means the signal is gone before it arrives.



WHAT IT MEANS FOR YOUR DEPLOYMENT

POINT MEASURED PREDICTED		
Open office or open floor	**Up to ~30 m** (100 ft)	One centered Base per floor; often per building.
Dense office, brick interior walls	**15–25 m** (50–80 ft)	Center the Base; validate the far rooms before mounting.
Warehouse / industrial, stacked metal	**10–15 m** (30–50 ft)	Sensors in aisles; a Base per zone or a Wired Sensor Adapter at the obstruction; use the Site Planning Service.

Other RF systems (Wi-Fi, Bluetooth, microwave ovens), people in the signal path (10–20 dB) and changing inventory all reduce range further. Validate on-site.

HOW WE TESTED

RF modeling software: line-of-sight ray model with material attenuation from measured floor plans. Field RSSI logged with a BLE sniffer at fixed points.

RECOMMENDED FOR ENTERPRISE

Ethernet and continuous power for the Base. Center it, mount it high, keep sensors out of busy walkways, and confirm every location is above −85 dBm before final mounting.

RESULTS WILL VARY

Construction, obstructions, equipment density and surrounding 2.4 GHz activity all matter. This validation supports planning; it is not a guarantee of coverage at a specific site.

Want this done for your building?

Send us a floor plan and we will model your Base Station and sensor placement before you buy a single device.

A small sensor. A bigger picture.

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