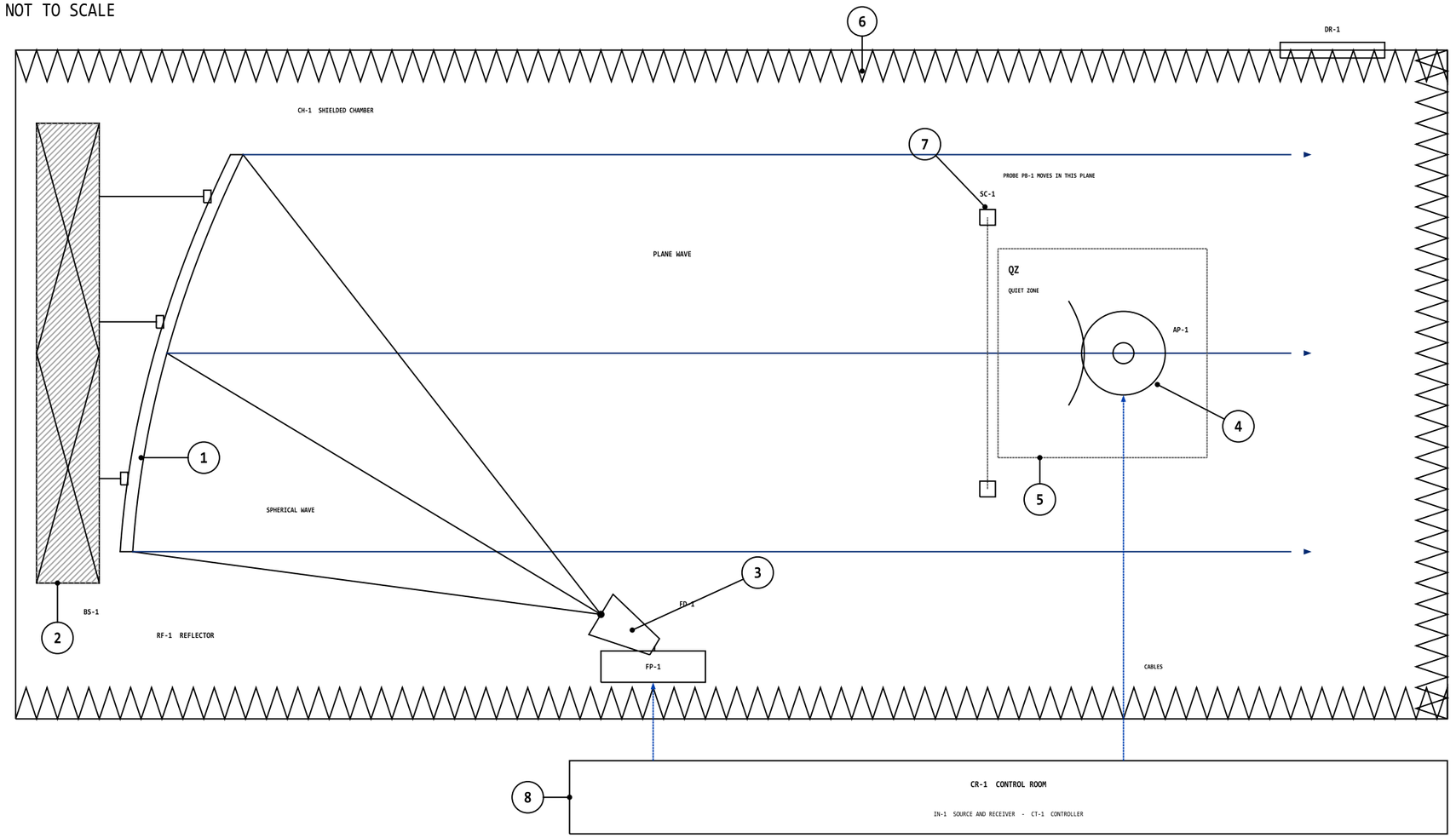
PLAN - COMPACT ANTENNA TEST RANGE

NOT TO SCALE



NOTES

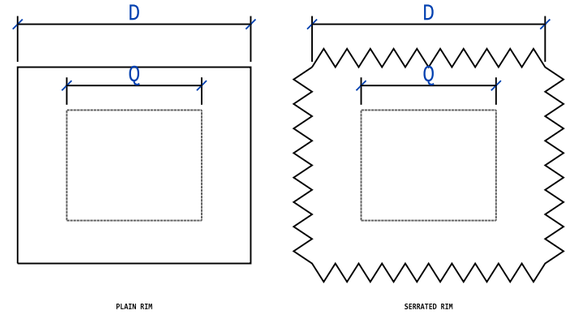
1. REFERENCE ARRANGEMENT OF A COMPACT ANTENNA TEST RANGE. LETTERS ARE DIMENSIONS SET BY DESIGN: NO FREQUENCY, SIZE, DISTANCE, RIPPLE OR ACCURACY VALUE IS GIVEN.
2. THE PLAN SHOWS THE REFLECTOR RF-1 ON ITS BACKING STRUCTURE BS-1, THE FEED FD-1 AT THE FOCUS ON ITS POSITIONER FP-1, THE SPHERICAL WAVE TURNED INTO A PLANE WAVE, THE QUIET ZONE QZ WITH THE ANTENNA POSITIONER AP-1, THE SCANNER PLANE SC-1 AND THE CONTROL ROOM CR-1.
3. DETAIL A: THE QUIET ZONE Q INSIDE THE REFLECTOR D, WITH A PLAIN AND A SERRATED RIM. DETAIL B: A BUMP OF HEIGHT e ON THE SURFACE. DETAIL C: THE ZONE SCANNER IN FRONT VIEW.
4. THE CHAIN AND THE CURVES ARE ON SHEET 002. THE SOURCE, THE RECEIVER, THE ABSORBER AND THE REFLECTOR SURFACE ARE SPECIALIST ITEMS, BOUGHT IN OR MADE TO THE CUSTOMER'S ACCURACY. GUARDS AND FLOOR PROTECTION ARE NOT SHOWN.

ITEMS

ITEM	DESCRIPTION
1	REFLECTOR RF-1
2	BACKING STRUCTURE BS-1
3	FEED FD-1 ON POSITIONER FP-1
4	ANTENNA POSITIONER AP-1
5	QUIET ZONE QZ
6	ABSORBER LINING AB-1
7	ZONE SCANNER SC-1
8	CONTROL ROOM CR-1

DETAIL A - THE RIM, PLAIN AND SERRATED

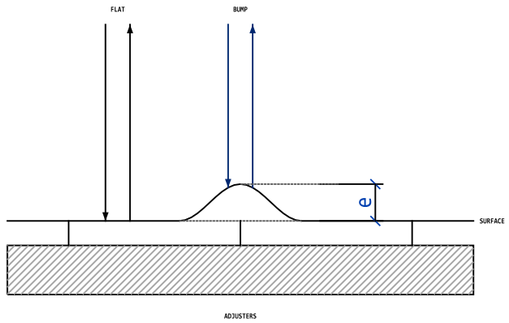
NOT TO SCALE



THE QUIET ZONE Q IS A PART OF THE REFLECTOR D; ITS EDGE DIFFRACTS INTO IT AS RIPPLE: A PLAIN RIM MAKES MORE, A SERRATED OR ROLLED RIM SPREADS THE EDGE WAVE AND TAKES IT DOWN, SO THE CLEAN PART OF THE ZONE IS WIDER (SHEET 002, DETAIL B)

DETAIL B - A BUMP ON THE SURFACE

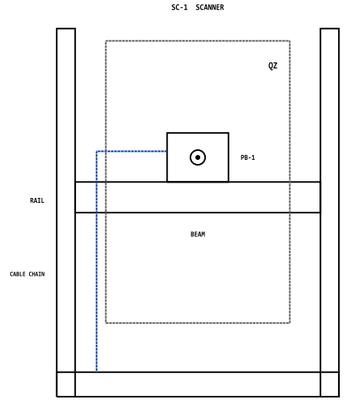
NOT TO SCALE



A BUMP OF HEIGHT e ON THE SURFACE CHANGES THE PATH OF THE WAVE BY UP TO TWICE e, BECAUSE THE WAVE GOES IN AND COMES BACK: THE SURFACE IS HELD TO A SMALL FRACTION OF A WAVELENGTH BY THE ADJUSTERS AND SET ON A LASER TRACKER, AND IT SETS THE HIGHEST BAND (DETAIL C OF 002)

DETAIL C - THE ZONE SCANNER

NOT TO SCALE



THE PROBE PB-1 ON THE CARRIAGE SWEEPS THE ZONE, READING AMPLITUDE AND PHASE AT EACH POINT; THE SCANNER IS FLAT AND SQUARE TO THE WAVE, SET ON A LASER TRACKER

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED

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COMPACT ANTENNA TEST RANGE - REFERENCE CONFIGURATION

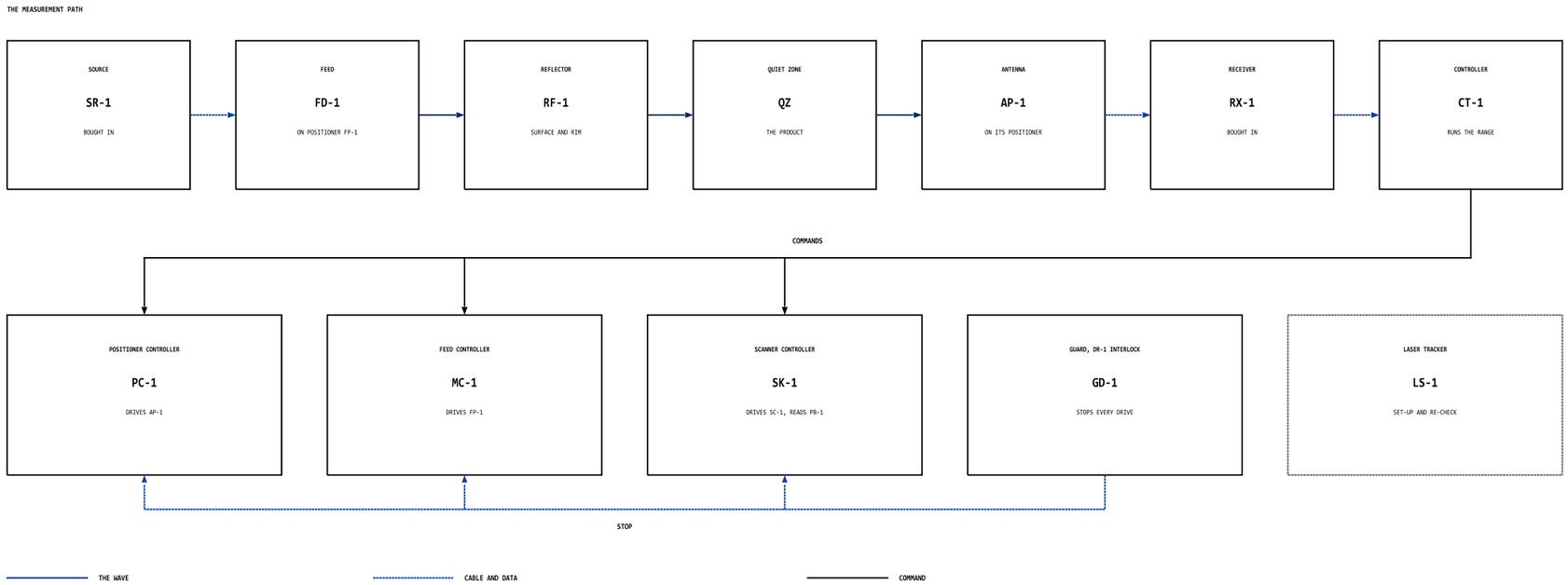
ARRANGEMENT AND DETAILS

THE RANGE, THE RIM, THE SURFACE AND THE ZONE SCANNER

DWG NO	SCALE @ A3	SHEET	REV
NMX-CTR-114-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
19-11-2026	TAGS ONLY	NMX-DO	REFERENCE

SIGNAL AND CONTROL - COMPACT ANTENNA TEST RANGE

NOT TO SCALE

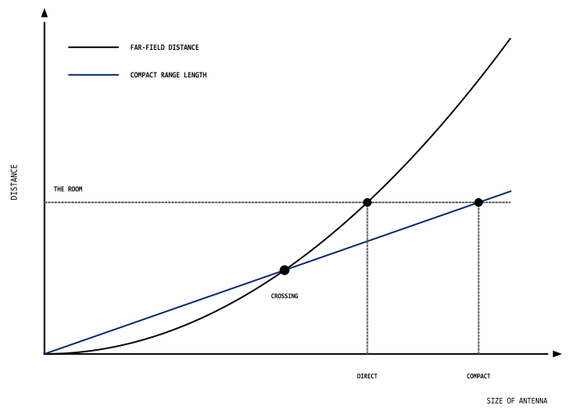


NOTES

1. REFERENCE CHAIN OF A COMPACT ANTENNA TEST RANGE. TAGS AND LETTERS ONLY: NO FREQUENCY, SIZE, DISTANCE, RIPPLE OR ACCURACY VALUE IS GIVEN.
2. THE MEASUREMENT PATH: THE SOURCE SR-1 FEEDS THE FEED FD-1, THE REFLECTOR RF-1 TURNS ITS SPHERICAL WAVE INTO THE PLANE WAVE OF THE QUIET ZONE QZ, THE ANTENNA UNDER TEST ON THE POSITIONER AP-1 RECEIVES IT AND THE RECEIVER RX-1 READS IT FOR THE CONTROLLER CT-1. WHEN THE ZONE IS SCANNED THE PROBE PB-1 TAKES THE PLACE OF THE ANTENNA.
3. COMMANDS: CT-1 DRIVES THE POSITIONER CONTROLLER PC-1, THE FEED CONTROLLER MC-1 AND THE SCANNER CONTROLLER SK-1. THE GUARD AND DOOR INTERLOCK GD-1 STOPS EVERY DRIVE. THE LASER TRACKER LS-1 IS USED AT SET-UP AND AT EACH RE-CHECK, NOT IN THE MEASUREMENT.
4. DETAILS A TO C ARE COMPUTED FROM SIMPLE RELATIONS IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT. THE ARRANGEMENT IS ON SHEET 001.

DETAIL A - WHY A REFLECTOR

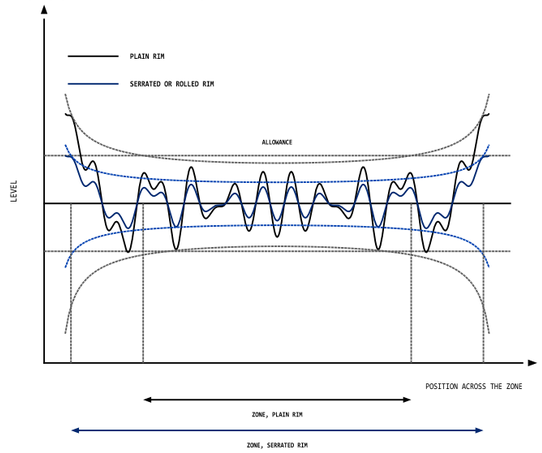
NOT TO SCALE - COMPUTED



THE FAR-FIELD DISTANCE GROWS WITH THE SQUARE OF THE SIZE OF THE ANTENNA; THE LENGTH OF A COMPACT RANGE GROWS ONLY IN STEP WITH ITS REFLECTOR: ABOVE THE CROSSING THE SAME ROOM TAKES A LARGER ANTENNA, AND BELOW IT A SMALL ANTENNA NEEDS NO REFLECTOR; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL B - THE RIPPLE AND THE ZONE

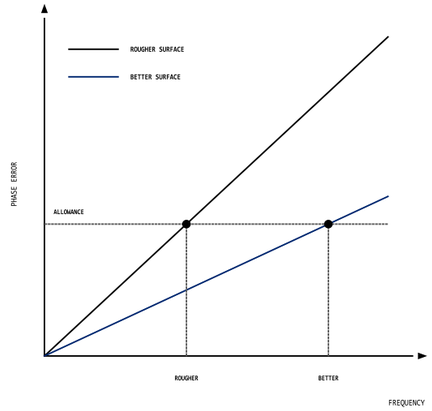
NOT TO SCALE - COMPUTED



THE FIELD IN THE ZONE IS THE DIRECT WAVE PLUS A SMALL WAVE FROM EACH RIM; THEY BEAT AS THE POSITION CHANGES, AND THE RIPPLE (DASHED: ITS ENVELOPE) GROWS TOWARD THE RIM; THE ZONE ENDS WHERE THE ENVELOPE LEAVES THE ALLOWANCE, AND A SERRATED OR ROLLED RIM SPREADS THE EDGE WAVE, SO THE ZONE IS WIDER; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL C - THE SURFACE SETS THE BAND

NOT TO SCALE - COMPUTED



A BUMP CHANGES THE PATH BY UP TO TWICE ITS HEIGHT; THE PHASE ERROR GROWS WITH THE BUMP AND WITH THE FREQUENCY, SO THE ALLOWANCE SETS THE HIGHEST BAND AND A BETTER SURFACE RAISES IT; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
ENGINEERED IN NOIDA - INDIA

COMPACT ANTENNA TEST RANGE - REFERENCE CONFIGURATION

CHAIN AND CURVES

THE CHAIN OF THE RANGE AND THE CURVES OF THE IDEA

DWG NO	SCALE @ A3	SHEET	REV
NMX-CTR-114-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
19-11-2026	TAGS ONLY	NMX-DO	REFERENCE