



EMC Instrumentation Range

How do you know that the test results from your EMC measurement systems are correct? How can you be sure that test facilities on different sites are yielding the same results? Can you carry out regular verification checks on each of your test systems to ensure that your laboratory complies with ISO17025? Imagine that one of your products is failing radiated emissions tests and you need to be able to measure the effectiveness of the EM shielding or that you've designed a filter and need to check its characteristics accurately.

In all of these cases investigation will require the use of a known, stable signal to inject into the system to carry out measurements. A York EMC Services broadband reference signal source will allow you to start your work from the point of knowing that the noise or signal source is defined and stable.

Reference Noise and Signal Sources

- Frequencies up to 40GHz with both conducting and radiating output versions allow a wide range of uses.
- Highly stable outputs over time and temperature providing a known, good output with which to characterise the performance of systems.
- Continuous noise reference signal sources – CNE range. 9kHz – 7GHz. Continuous, broadband output across the operating frequency enables a more complete evaluation of the system being analysed with no gaps in the spectrum.
- Harmonic comb spectrum reference signal

sources – CGE range. 50MHz – 40GHz. More appropriate for higher frequencies where the energy is concentrated in discrete harmonics of the step size.

- Physically small and battery powered units facilitate use in a wide range of situations.
- Use to characterise EMC test and measurement systems, measurement environments, screened rooms, anechoic chambers, open area test sites, filters, cables, connectors, amplifiers, receivers, spectrum analysers, or the shielding effectiveness of enclosures and materials.
- The CNE III is an industry standard used as the reference source for several inter-site comparison studies between measurement environments in national and international studies in the UK, the USA and Europe.

Harmonics and Flicker Test Equipment Checks

- The HFG01 is a reference test load developed to allow periodic verification or comparisons of test equipment used to measure harmonics and flicker under IEC/EN61000-3-2 and IEC/EN61000-3-3.

Emissions Measurement Antenna

- The ARA01 is a physically compact, low cost, active receive antenna allowing measurements in confined spaces or remote locations.
- Performance comparable to the 'Bilog' and other wideband antennas operating between 30MHz and 1GHz.

Applications Matrix	HFG01	CNE III	CNE V	CNE VII	CGE01	CGE02	CGE03	ARA01
Pre-test checks	●	●	●	●	●	●	●	
Long-term performance monitoring	●	●	●	●	●	●	●	
Measurement environment comparison		●	●	●	●	●	●	●
OATS, FAR, screened room characterisation		●	●	●	●	●	●	●
Reverberation (mode stirred) chamber characterisation					●	●	●	●
Filter performance analysis		●	●	●	●	●	●	
Cable/connector loss analysis		●	●	●	●	●	●	
Shielding effectiveness measurements					●	●	●	●
Confined space/portable measurements		●	●	●	●	●	●	●
Low cost, compact, wideband antenna								●

Product Overview

HFG01	CNE III	CNE V	CNE VII	CGE01	CGE02	CGE03	ARA01
Reference harmonics and flicker generator	Continuous, broadband, reference noise source	Continuous, broadband, reference noise source	Continuous, broadband, reference noise source	Comb spectrum, broadband, reference signal source	Comb spectrum, broadband, reference signal source	Comb spectrum, broadband, reference signal source	Active, compact, wideband antenna
Conducted reference load	Conducted output with antenna options	Conducted output with antenna options	Integral antenna	Conducted output or integral antenna options	Conducted output or integral antenna options	Conducted output for external antenna use	Receive only
50Hz – 2kHz	9kHz – 2GHz	150kHz – 1GHz	1.5GHz – 7GHz	50MHz – 18GHz	250MHz – 26GHz	900MHz – 40GHz	30MHz – 1GHz
<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable ■ Injects harmonics to EN61000-3-2 and flicker to EN61000-3-3 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable ■ Continuous output – full spectrum analysis ■ Battery powered – no cables 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable ■ Continuous output – full spectrum analysis ■ Battery powered – no cables ■ Low cost 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable ■ Continuous output – full spectrum analysis ■ Battery powered – no cables 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable, measurements in confined spaces ■ 50MHz step size – CISPR16 ■ Battery powered – no cables 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable, measurements in confined spaces ■ High frequency ■ Battery powered – no cables 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable, measurements in confined spaces ■ High frequency ■ Battery powered – no cables 	<ul style="list-style-type: none"> ■ Stable – repeatable measurements ■ Compact – portable, measurements in confined spaces, field testing ■ Battery powered ■ Low cost

Specification Overview

	HFG01	CNE III	CNE V	CNE VII	CGE01	CGE02	CGE03	ARA01
								
Frequency range conducted	50Hz – 2kHz. Harmonics steady state or fluctuating. Flicker 1Hz or 8.33Hz.	9kHz – 2GHz	150kHz – 1GHz	–	50MHz – 18GHz	250MHz – 26GHz	900MHz – 40GHz	–
Frequency range radiated	–	1MHz – 2GHz	1MHz – 1GHz	1.5GHz – 7GHz	50MHz – 18GHz	250MHz – 26GHz	900MHz – 40GHz	30MHz – 1GHz
Step size	–	Continuous	Continuous	Continuous	50/80/100MHz	250/256MHz	0.9/1.0GHz	–
Output connector	Standard, local mains plug	50Ω BNC socket	50Ω BNC socket	–	50Ω SMA socket	50Ω SMA socket	50Ω 2.9mm socket	50Ω BNC socket
Temperature stability typical -5°C to 35°C	–	<2dB	<2dB	<2dB	<2dB	<2dB	<2dB	<2dB
Time stability typical over a 12 month period	–	<1dB	<1dB	<1dB	<1dB	<1dB	<1dB	<1dB
Power off timer	–	Continuous or variable 15 - 135 min	–	–	–	–	–	–
Dimensions mm not including antenna	330 x 320 x 170	206 x 120 x 80	120 x 120 x 41	150 diameter x 150	76 dia x 18 remote powered 76 dia x 92 with battery pack	76 dia x 18 remote powered 76 dia x 92 with battery pack	76 dia x 50 remote powered 76 dia x 134 with battery pack	34 x 34 x 150
Weight kg approx (excluding battery)	4.0	1.3	0.53	4.0	0.55	0.55	0.7	0.4
Power supply:	230Vac, 50Hz, 400W maximum	4 x C-type cells	1 x 9V cell	8V, 5Ahr battery pack	5V 2Ahr battery pack. External input 5.00V ± 0.25V, 300mA	5V 2Ahr battery pack. External input 5.00V ± 0.25V, 300mA	5V 2Ahr battery pack. External input 5.00V ± 0.25V, 500mA	1 x 9V cell
Operating time Hrs typical	–	12.0 (Alkaline cells)	5.0 (Alkaline cells)	7.0	6.5	6.5	4.0	6.5 (Alkaline cells)
Indicators	Thermal shutdown – red LED	Power on – green LED	Power on – green LED Battery low – red LED	Power on – green LED Battery low – red LED	Active, lower step size – green LED Active, higher step size – red LED	Active, lower step size – green LED Active, higher step size – red LED	Active, lower step size – green LED Active, higher step size – red LED	Power on – green LED Battery low – red LED
Recommended kit part number	HFG01KIT01	CNEIIIKIT01	CNEVKIT01	CNEVIIKIT01	CGE01KIT03	CGE02KIT03	CGE03KIT01	ARA01KIT01
What's in the box?	HFG01, Test results, Manual	CNEIII, 0.2-1GHz Antenna, LISN Adaptor, Batteries, Hard case, Test results, Manual	CNEV, 0.2-1GHz Antenna, Battery, Hard case, Test results, Manual	CNEVII, Battery pack, Battery charger, Hard case, Test results, Manual	CGE01C (conducted output), Detachable monocone antenna, Battery charger, Hard case, Test results, Manual	CGE02C (conducted output), Detachable monocone antenna, Battery charger, Hard case, Test results, Manual	CGE03C (conducted output), Battery charger, Hard case, Test results, Manual	ARA01, Pair of 200MHz – 1GHz antennas, Battery, Hard case, Test results, Manual
Accessories	–	1-30MHz Antenna, 30-300MHz Antenna, 0.2-1GHz Antenna, 1-2GHz Antenna LISN Adaptor	1-30MHz Antenna, 30-300MHz Antenna, 0.2-1GHz Antenna, LISN Adaptor	8V, 5Ahr battery pack	Detachable 1-26GHz monocone antenna, 5V 2Ahr battery pack	Detachable 1-26GHz monocone antenna, 5V 2Ahr battery pack	5V 2Ahr battery pack	Pair of 30-300MHz Antennas External power-by-RF cable adaptor