

# ISO 11452-4:2020-04 (E)

## Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4: Harness excitation methods

<b>Contents</b>		<b>Page</b>
Foreword		iv
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>1</b>
<b>4</b>	<b>Test conditions</b>	<b>1</b>
<b>5</b>	<b>Test location</b>	<b>2</b>
<b>6</b>	<b>Test instrumentation</b>	<b>2</b>
6.1	BCI test method	2
6.1.1	General	2
6.1.2	Injection probe	3
6.1.3	Current measurement probe	3
6.1.4	Stimulation and monitoring of the DUT	3
6.2	TWC test method	3
6.2.1	General	3
6.2.2	Tubular wave coupler	3
6.2.3	50 $\Omega$ load resistor	4
6.2.4	Stimulation and monitoring of the DUT	4
<b>7</b>	<b>Test set-up for DUT powered by an unshielded power system</b>	<b>4</b>
7.1	Ground plane	4
7.2	Power supply and AN	4
7.3	Location of the DUT	5
7.4	Location of the test harness	5
7.5	Location of the load simulator	5
7.6	Location of the harness excitation	6
7.6.1	BCI test method	6
7.6.2	TWC test method	6
<b>8</b>	<b>Test setup for DUT powered by a shielded power system</b>	<b>10</b>
8.1	Ground plane	10
8.2	Power supply and AN, HV-AN, AMN and AAN	10
8.3	Location of DUT	10
8.4	Location of test harness	11
8.5	Location of load simulator	12
8.6	Location of the harness excitation	12
8.6.1	BCI test method	12
8.6.2	TWC test method	13
<b>9</b>	<b>Test procedure</b>	<b>26</b>
9.1	General	26
9.2	Test plan	26
9.3	Test methods	26
9.3.1	BCI test method	26
9.3.2	Tubular wave coupler test method	29
9.4	Test report	30
<b>Annex A</b>	<b>(normative) Calibration configuration (current injection probe calibration)</b>	<b>32</b>
<b>Annex B</b>	<b>(informative) Test set-up transfer impedance</b>	<b>34</b>
<b>Annex C</b>	<b>(informative) Remote/local grounding</b>	<b>40</b>
<b>Annex D</b>	<b>(informative) Function performance status classification (FPSC)</b>	<b>42</b>