Calibration Laboratory Cert: 5518.01

ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994

Accredited Calibration Certificate

Customer Address:	Rental Unit
Certificate:	A2402053CC
Product:	LISN
Manufacturer:	Schwarzbeck
Model:	NNLK 8129
Serial:	331
Notes:	9kHz to 30MHz, 50µH ‖ 50Ω
Report Issued:	2/5/2024
Date of Calibration:	2/5/2024
Next Calibration: *	

The next calibration date is defined by the equipment user/owner.

The results of the tests performed are held on file at The EMC Shop. The calibration was carried out in accordance with the general requirements of ISO/IEC 17025-2017, ANSI Z-540-1, CISPR 16-1-2, MIL-STD-461, FCC Part 15, and ANSI C63.4 at the address shown above, using laboratory standards which are traceable to the SI International System of Quantities through the National Institute of Standards and Technology (NIST), and or other Accredited bodies except where none exist. Tests are carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. This certificate shall not be reproduced except in full without the written approval of the laboratory. The uncertainty results meet the requirements of the ISO/IEC 17025-2017 standard and ILAC Doc.P14. Statements of conformity (e.g. Pass or Fail) are made in accordance with Simple Acceptance decision rules as defined in ILAC G8 with a TUR of 4:1 or greater. The customer is responsible for considering whether the inclusion of the uncertainties shown on the certificate would prevent their use of the equipment based on their risk evaluations. Results are accredited unless annotated with an asterisk "*". The Results presented above are only applicable to the Model/Serial number shown. Template Rev2.

Ambient Conditions of Laboratory	
Temperature (°C):	**22.1**
Relative Humidity (%):	**37**

Technician: **Caleb Crites**

Signature: Caleb B Crites

Calibration Equipment				
Model	**Description**	**Serial Number**	**Certificate**	**Due Date**
ZNB 8	Rohde&Schwarz Vect. Netw. Ana.	103153	5000-309120570	7/3/2024
ZV-Z21	Calibration Kit (50Ω)	100800	0001A300706445	7/27/2024

Calibration method used: CISPR 16-1-2

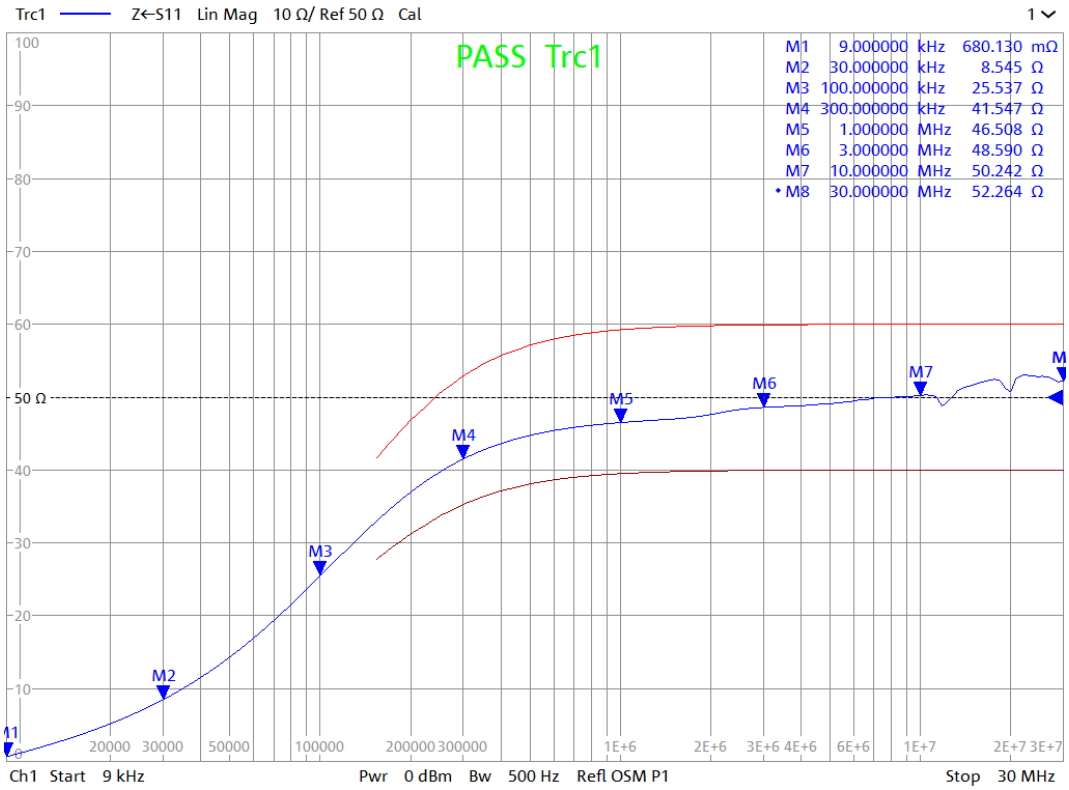
Condition as found:	In tolerance
Condition as left:	In tolerance

Measuring Uncertainties	
Insertion Loss	**0.20 dB**
Impedance	**1.4 Ω**
Phase	**2.64°**

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95%. *Synchronization not accredited.

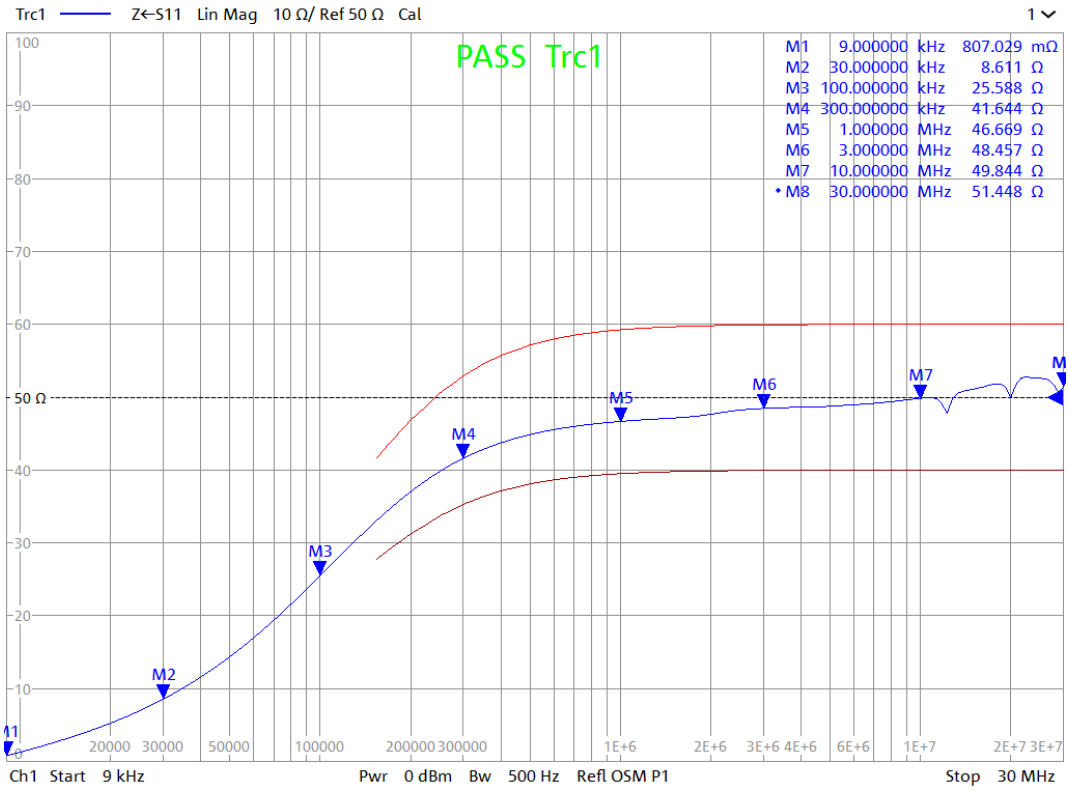
Impedance on L-1 Port

Specification: CISPR 16-1-2:2003 pg 21



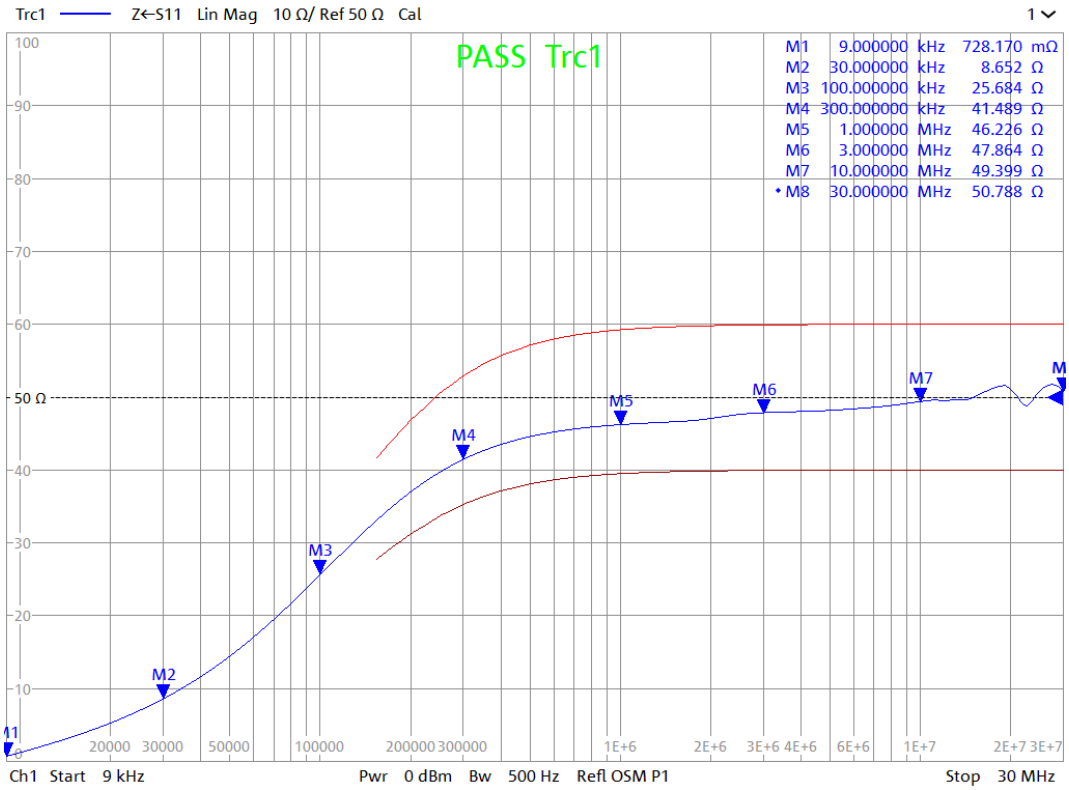
Impedance on L-2 Port

Specification: CISPR 16-1-2:2003 pg 21



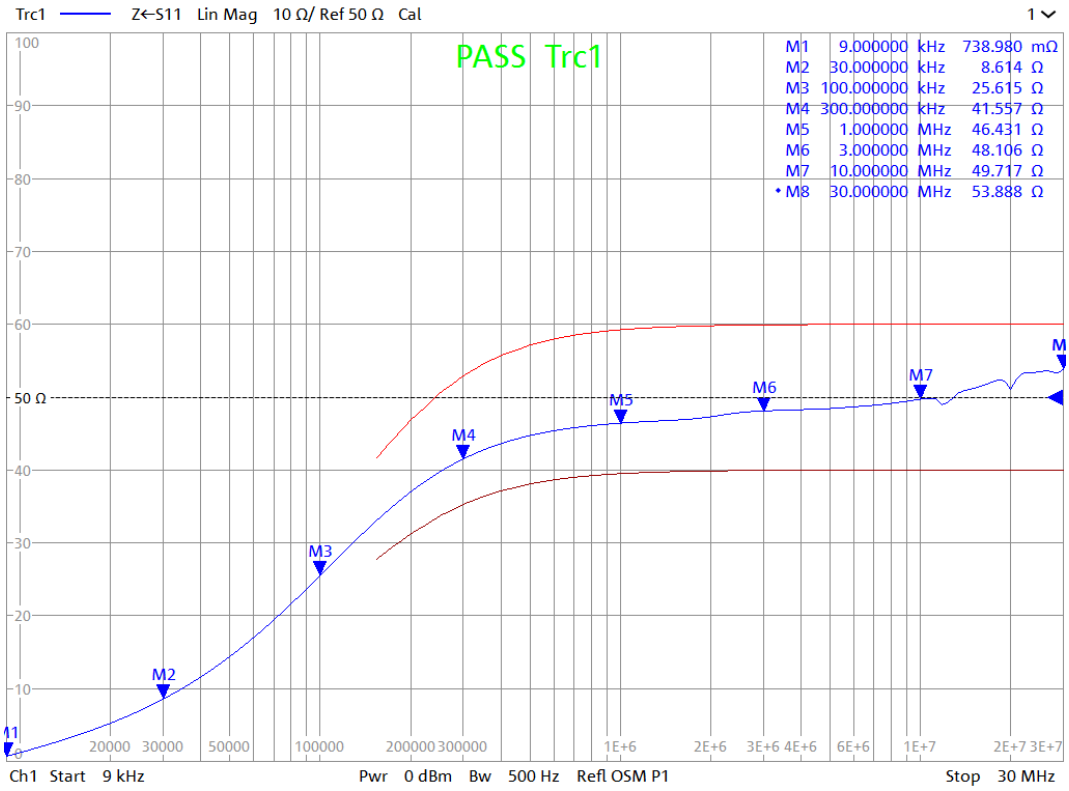
Impedance on L-3 Port

Specification: CISPR 16-1-2:2003 pg 21



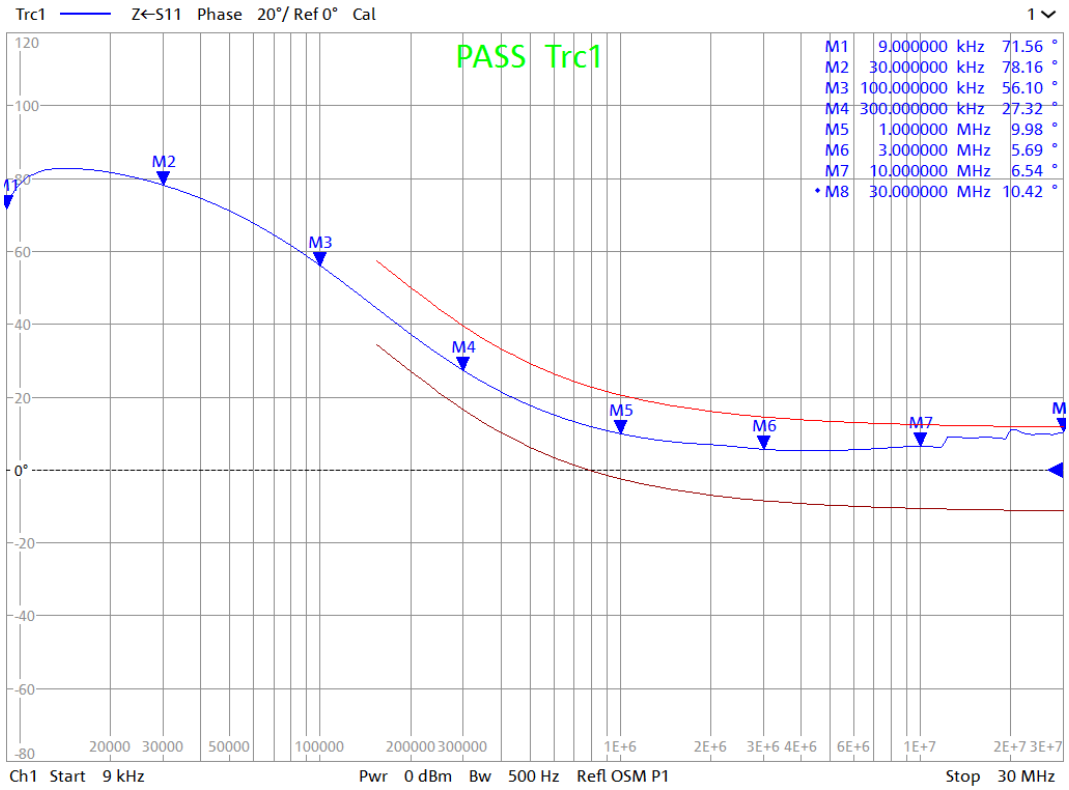
Impedance on N Port

Specification: CISPR 16-1-2:2003 pg 21



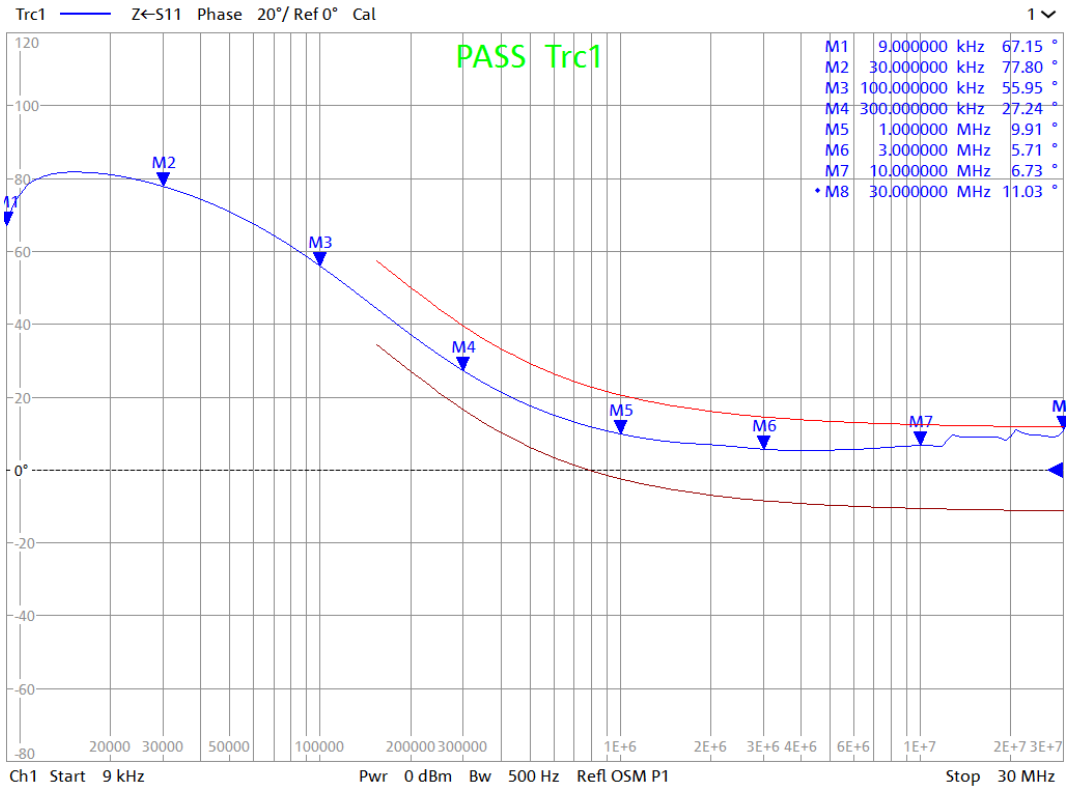
Phase on L-1 Port

Specification: CISPR 16-1-2:2003 pg 21

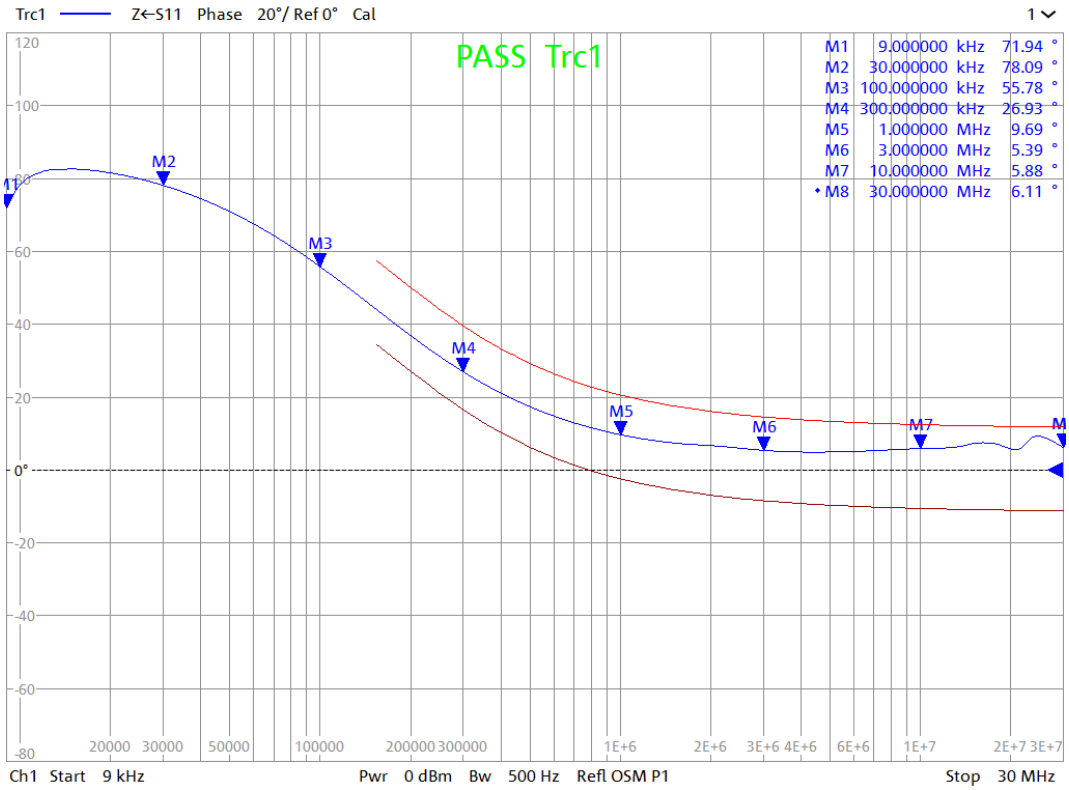


Phase on L-2 Port

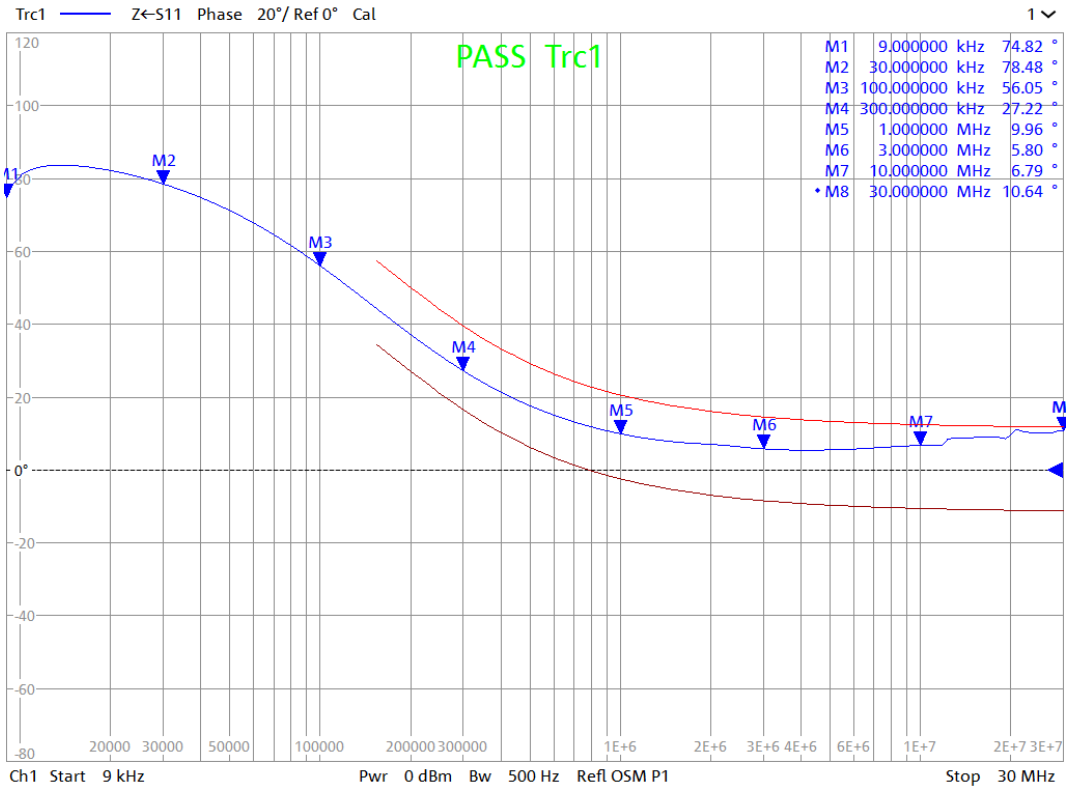
Specification: CISPR 16-1-2:2003 pg 21



Phase on L-3 Port **Specification: CISPR 16-1-2:2003 pg 21**

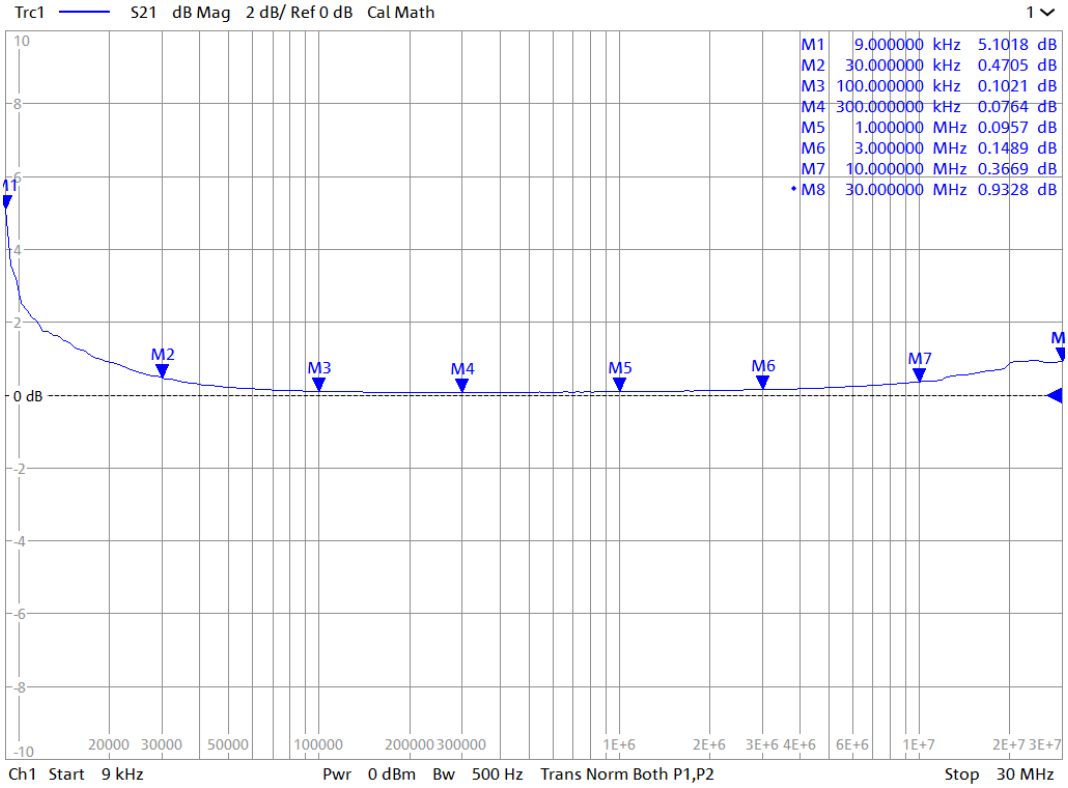


Phase on N Port **Specification: CISPR 16-1-2:2003 pg 21**



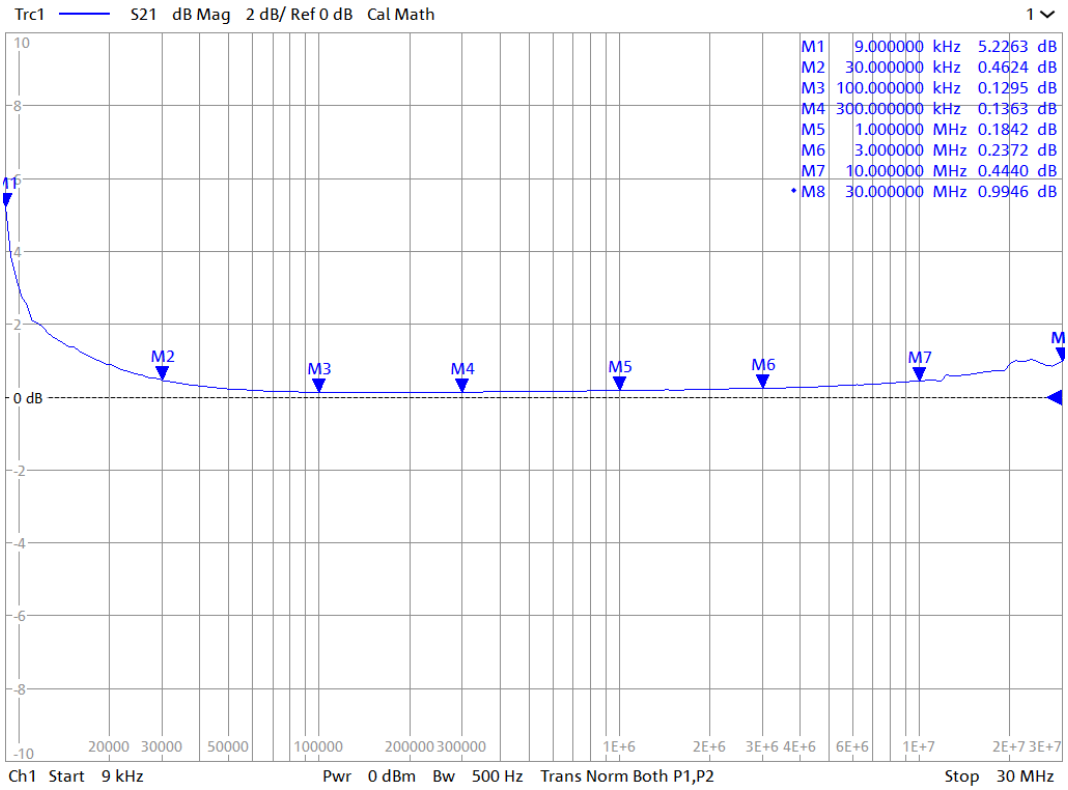
Voltage Division Factor L-1 and RF port

Specification: CISPR 16-1-2:2003 pg 33, 79-81



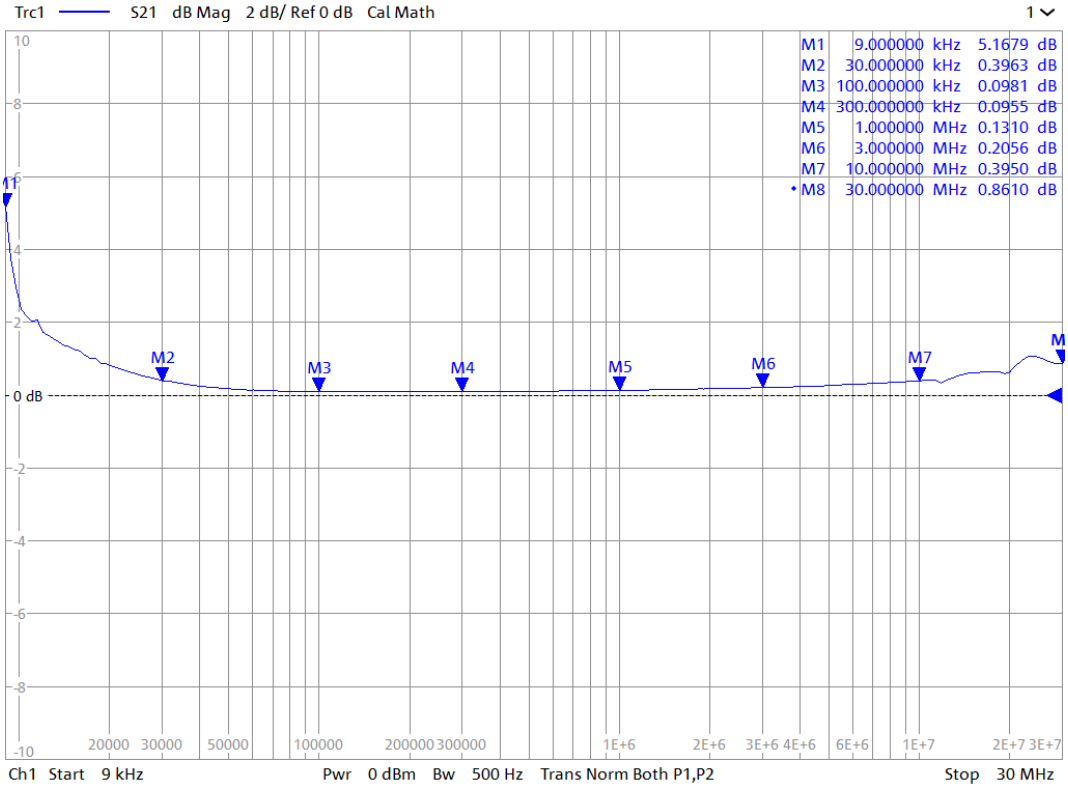
Voltage Division Factor L-2 and RF port

Specification: CISPR 16-1-2:2003 pg 33, 79-81



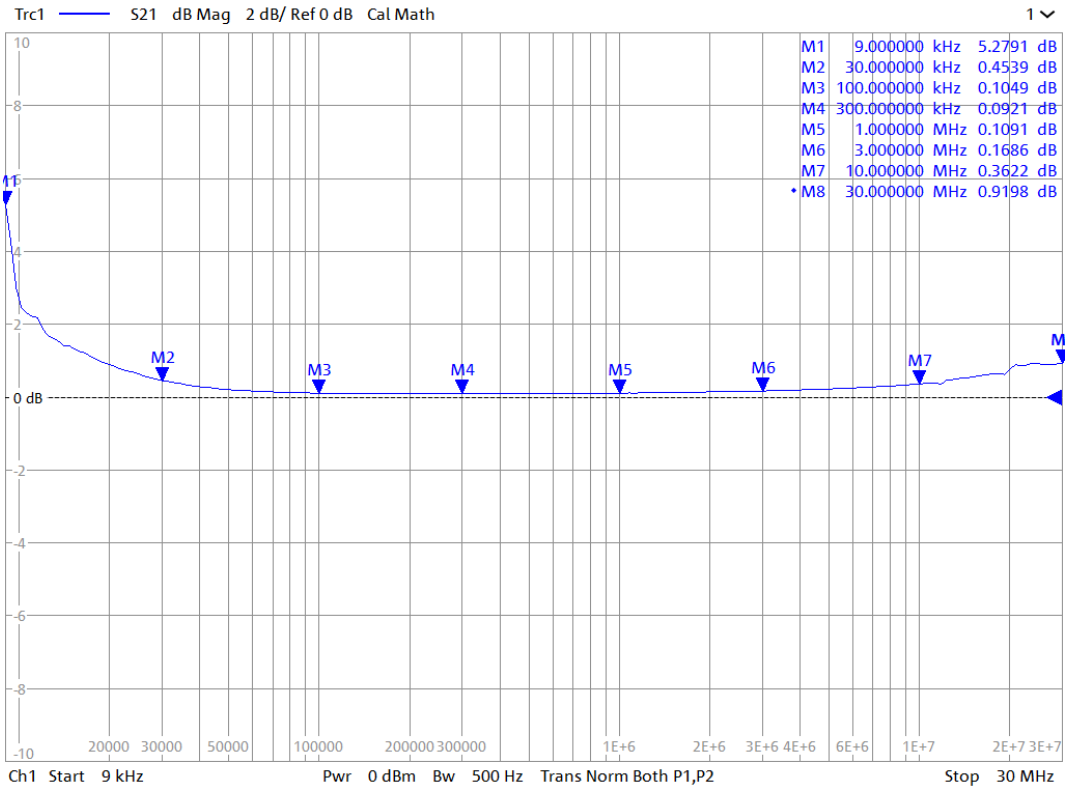
Voltage Division Factor L-3 and RF port

Specification: CISPR 16-1-2:2003 pg 33, 79-81



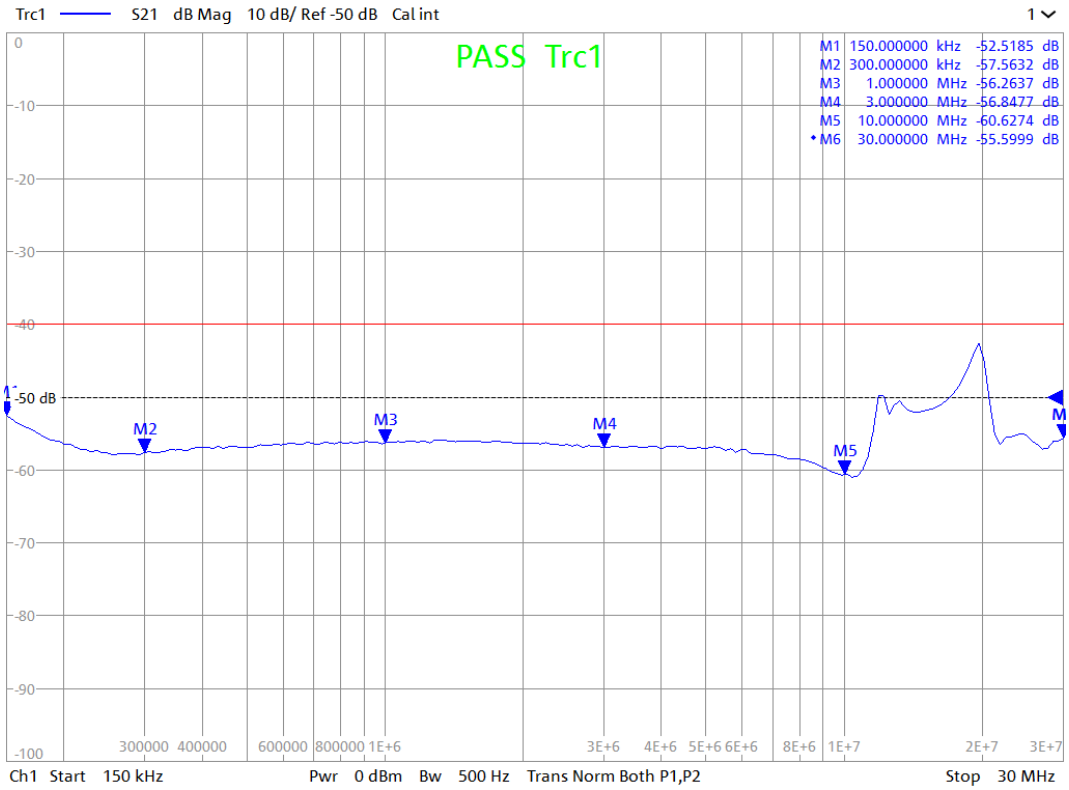
Voltage Division Factor N and RF port

Specification: CISPR 16-1-2:2003 pg 33, 79-81



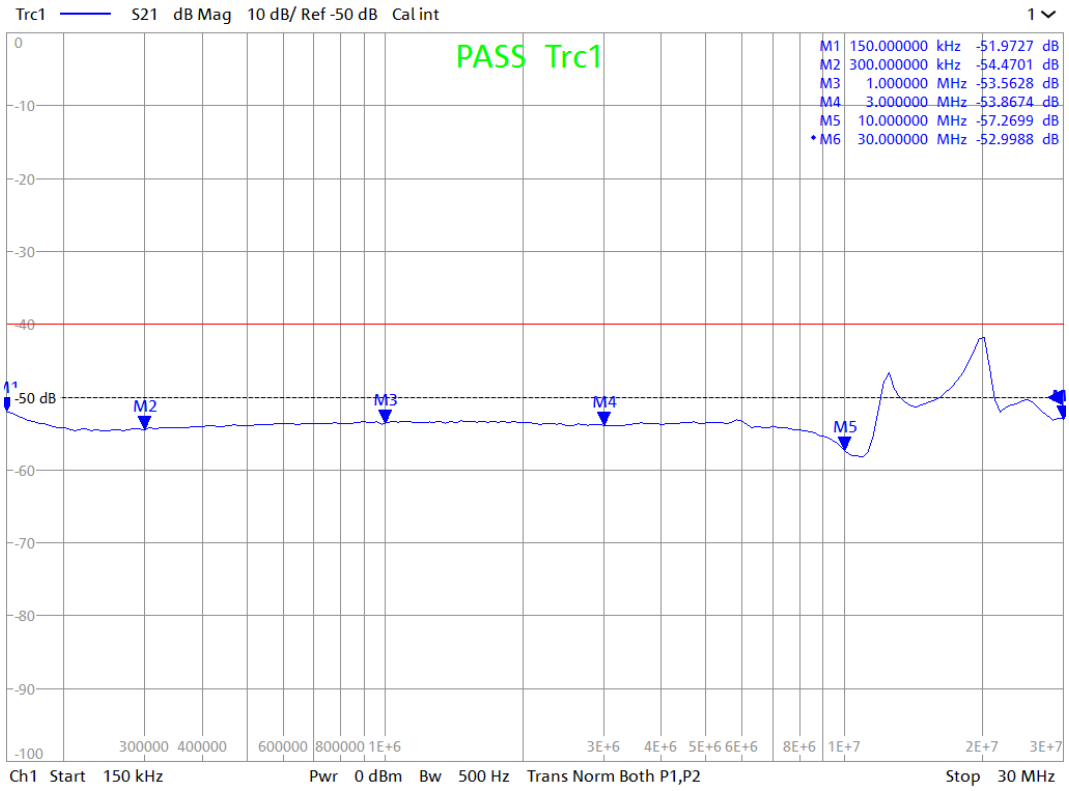
Isolation of L-1 Port and EUT Power Input

Specification: CISPR 16-1-2:2003 pg 29



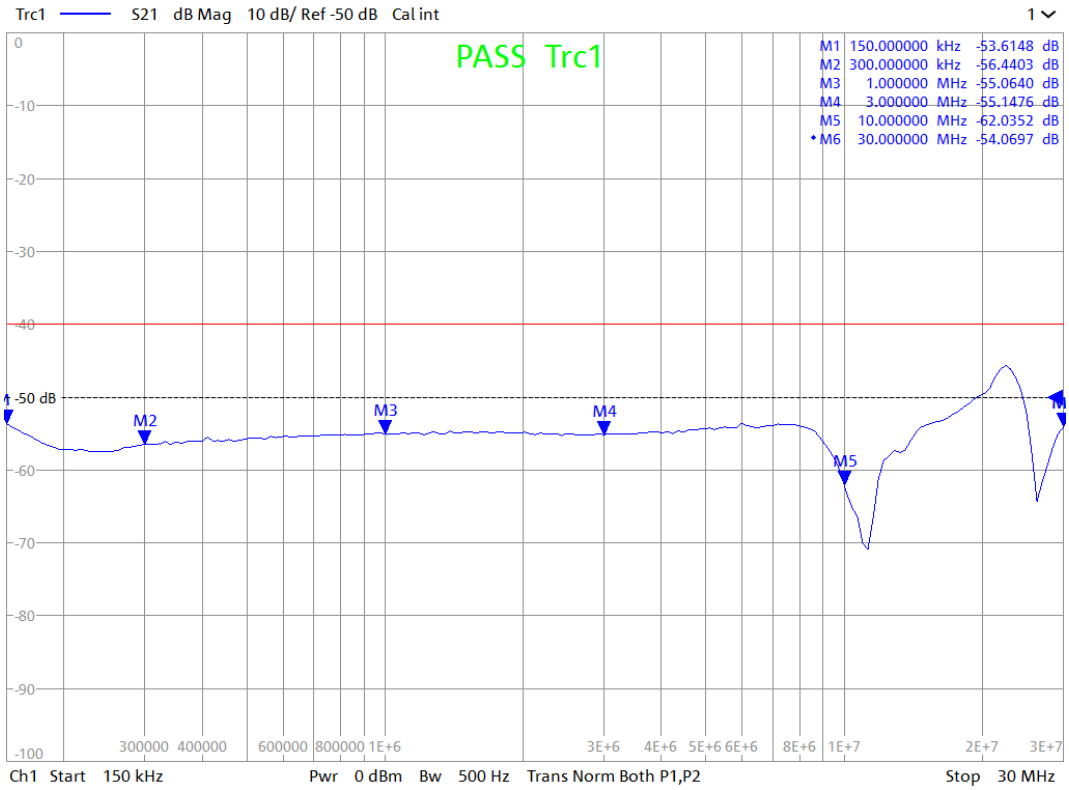
Isolation of L-2 Port and EUT Power Input

Specification: CISPR 16-1-2:2003 pg 29



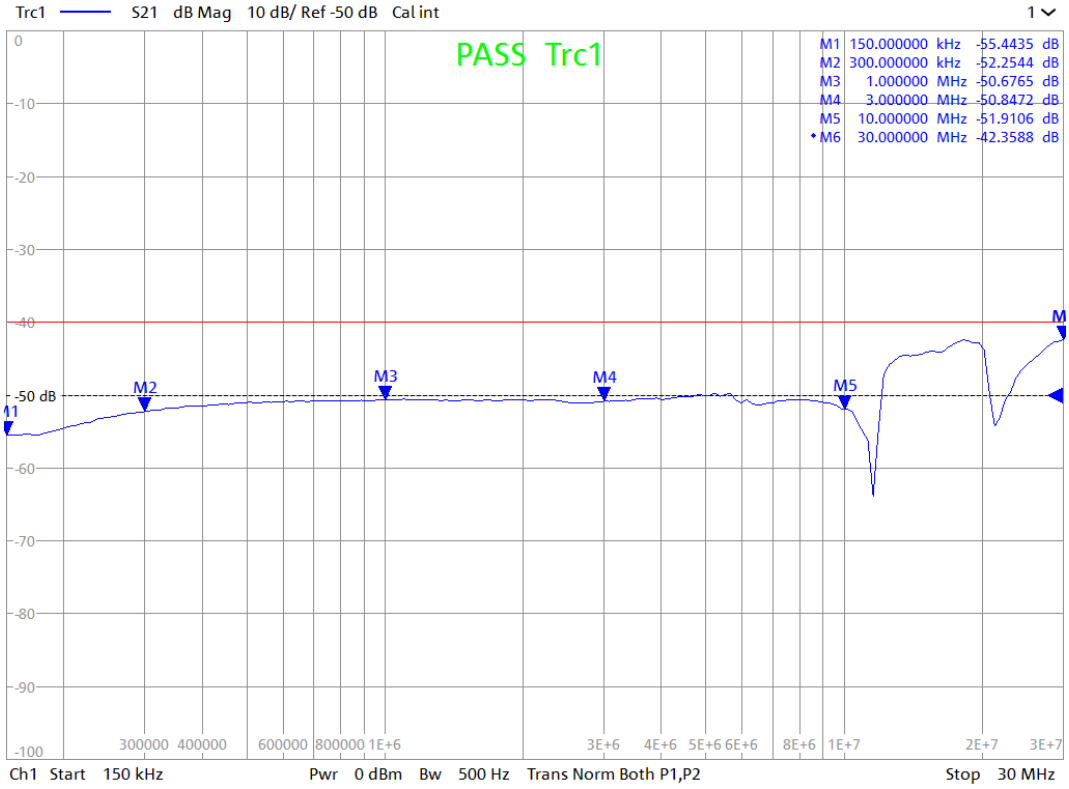
Isolation of L-3 Port and EUT Power Input

Specification: CISPR 16-1-2:2003 pg 29



Isolation of N Port and EUT Power Input

Specification: CISPR 16-1-2:2003 pg 29



Frequency (Hz)	Impedance L-1 (Ω)	Impedance L-2 (Ω)	Impedance L-3 (Ω)	Impedance N (Ω)
9,000	0.68	0.81	0.73	0.74
9,373	0.88	0.99	0.93	0.93
9,760	1.07	1.18	1.13	1.12
10,164	1.26	1.37	1.34	1.32
10,585	1.46	1.57	1.54	1.52
11,023	1.67	1.78	1.75	1.74
11,480	1.88	1.98	1.96	1.94
11,955	2.09	2.19	2.17	2.16
12,450	2.31	2.40	2.39	2.38
12,965	2.52	2.62	2.61	2.60
13,502	2.75	2.85	2.84	2.82
14,061	2.98	3.07	3.07	3.05
14,643	3.21	3.30	3.30	3.28
15,249	3.45	3.54	3.54	3.52
15,880	3.70	3.78	3.79	3.77
16,537	3.95	4.04	4.04	4.02
17,222	4.21	4.29	4.30	4.28
17,934	4.47	4.55	4.57	4.54
18,677	4.75	4.82	4.84	4.82
19,450	5.02	5.09	5.12	5.09
20,255	5.31	5.38	5.41	5.38
21,093	5.60	5.68	5.70	5.67
21,966	5.91	5.97	6.00	5.97
22,876	6.22	6.28	6.32	6.28
23,823	6.54	6.61	6.64	6.60
24,809	6.87	6.94	6.97	6.93
25,835	7.21	7.28	7.31	7.27
26,905	7.56	7.63	7.66	7.62
28,019	7.91	7.98	8.02	7.98
29,178	8.29	8.35	8.39	8.36
30,386	8.67	8.73	8.77	8.74
31,644	9.07	9.12	9.17	9.13
32,954	9.47	9.53	9.58	9.53
34,318	9.89	9.94	10.00	9.96
35,738	10.32	10.37	10.43	10.39
37,217	10.76	10.81	10.88	10.83
38,758	11.22	11.27	11.33	11.28
40,362	11.69	11.74	11.80	11.76
42,033	12.17	12.22	12.29	12.24
43,773	12.67	12.71	12.79	12.74

45,585	13.18	13.23	13.30	13.25
47,471	13.70	13.75	13.83	13.77
49,436	14.24	14.29	14.37	14.31
51,483	14.79	14.84	14.92	14.86
53,614	15.36	15.41	15.49	15.43
55,833	15.94	15.99	16.07	16.01
58,144	16.53	16.58	16.67	16.61
60,551	17.14	17.19	17.28	17.21
63,057	17.76	17.81	17.90	17.84
65,667	18.39	18.44	18.54	18.47
68,385	19.03	19.09	19.18	19.11
71,216	19.69	19.74	19.84	19.77
74,164	20.36	20.41	20.51	20.44
77,233	21.04	21.09	21.19	21.12
80,430	21.73	21.77	21.88	21.80
83,760	22.42	22.47	22.57	22.50
87,227	23.13	23.18	23.28	23.21
90,837	23.84	23.89	23.99	23.92
94,597	24.55	24.60	24.70	24.63
98,513	25.27	25.33	25.42	25.35
102,590	25.99	26.05	26.14	26.07
106,837	26.72	26.77	26.87	26.80
111,259	27.44	27.50	27.59	27.52
115,864	28.17	28.22	28.30	28.24
120,660	28.88	28.94	29.02	28.96
125,655	29.60	29.65	29.72	29.66
130,856	30.31	30.36	30.43	30.37
136,272	31.00	31.06	31.12	31.07
141,913	31.69	31.75	31.81	31.76
147,787	32.38	32.43	32.48	32.43
153,904	33.04	33.11	33.14	33.10
160,275	33.70	33.76	33.79	33.76
166,909	34.34	34.40	34.42	34.39
173,817	34.97	35.02	35.04	35.01
181,012	35.57	35.63	35.63	35.62
188,505	36.16	36.22	36.22	36.20
196,307	36.74	36.80	36.78	36.78
204,433	37.29	37.36	37.32	37.33
212,895	37.83	37.90	37.85	37.86
221,707	38.34	38.41	38.35	38.37
230,884	38.84	38.92	38.84	38.87
240,441	39.31	39.40	39.31	39.34
250,393	39.77	39.86	39.75	39.79
260,758	40.20	40.30	40.18	40.22

271,551	40.62	40.72	40.58	40.63
282,791	41.01	41.11	40.96	41.02
294,497	41.39	41.48	41.33	41.40
306,687	41.74	41.84	41.68	41.75
319,381	42.08	42.18	42.02	42.09
332,601	42.41	42.50	42.32	42.40
346,368	42.71	42.81	42.61	42.71
360,705	43.00	43.09	42.89	42.99
375,636	43.26	43.36	43.15	43.25
391,184	43.52	43.62	43.40	43.51
407,376	43.76	43.85	43.63	43.74
424,238	43.98	44.08	43.84	43.97
441,799	44.20	44.29	44.05	44.18
460,086	44.40	44.50	44.24	44.37
479,130	44.58	44.69	44.42	44.56
498,962	44.76	44.87	44.59	44.73
519,615	44.93	45.04	44.75	44.89
541,123	45.08	45.19	44.89	45.04
563,522	45.22	45.34	45.03	45.19
586,847	45.35	45.48	45.15	45.32
611,138	45.49	45.61	45.27	45.44
636,435	45.60	45.72	45.38	45.56
662,778	45.71	45.84	45.49	45.67
690,212	45.82	45.95	45.59	45.77
718,782	45.92	46.05	45.68	45.86
748,534	46.00	46.14	45.77	45.95
779,517	46.09	46.23	45.84	46.03
811,784	46.17	46.31	45.92	46.11
845,385	46.25	46.39	45.99	46.18
880,378	46.31	46.47	46.05	46.25
916,819	46.38	46.54	46.11	46.31
954,768	46.44	46.60	46.17	46.37
994,288	46.50	46.66	46.22	46.42
1,035,444	46.55	46.72	46.26	46.47
1,078,303	46.61	46.77	46.31	46.52
1,122,937	46.66	46.83	46.36	46.56
1,169,418	46.71	46.88	46.39	46.61
1,217,823	46.76	46.92	46.43	46.64
1,268,232	46.81	46.96	46.47	46.68
1,320,727	46.86	47.01	46.51	46.71
1,375,395	46.90	47.04	46.54	46.75
1,432,326	46.96	47.08	46.58	46.79
1,491,613	46.99	47.13	46.61	46.83
1,553,354	47.05	47.18	46.66	46.87

1,617,651	47.11	47.23	46.69	46.91
1,684,610	47.19	47.29	46.75	46.97
1,754,340	47.27	47.35	46.81	47.03
1,826,956	47.37	47.43	46.88	47.10
1,902,578	47.48	47.53	46.96	47.19
1,981,330	47.59	47.63	47.06	47.29
2,063,342	47.72	47.74	47.16	47.39
2,148,749	47.86	47.86	47.27	47.51
2,237,691	48.00	47.97	47.38	47.62
2,330,314	48.13	48.08	47.49	47.73
2,426,771	48.24	48.17	47.59	47.82
2,527,221	48.33	48.24	47.67	47.90
2,631,829	48.41	48.31	47.73	47.97
2,740,766	48.47	48.37	47.78	48.02
2,854,213	48.53	48.41	47.82	48.07
2,972,356	48.58	48.45	47.86	48.10
3,095,389	48.63	48.49	47.88	48.13
3,223,514	48.66	48.51	47.91	48.15
3,356,943	48.69	48.54	47.94	48.17
3,495,895	48.72	48.56	47.96	48.20
3,640,598	48.75	48.58	47.98	48.22
3,791,291	48.78	48.60	48.00	48.26
3,948,222	48.82	48.62	48.02	48.28
4,111,648	48.85	48.63	48.06	48.30
4,281,839	48.90	48.65	48.08	48.32
4,459,075	48.97	48.67	48.10	48.34
4,643,646	49.04	48.69	48.12	48.36
4,835,858	49.10	48.72	48.15	48.39
5,036,026	49.13	48.76	48.20	48.45
5,244,479	49.17	48.81	48.25	48.51
5,461,560	49.26	48.85	48.28	48.55
5,687,627	49.38	48.90	48.34	48.60
5,923,051	49.44	48.94	48.39	48.67
6,168,221	49.57	48.99	48.43	48.71
6,423,538	49.61	49.03	48.49	48.75
6,689,423	49.71	49.08	48.54	48.81
6,966,315	49.85	49.14	48.61	48.88
7,254,667	49.91	49.21	48.67	48.95
7,554,955	49.97	49.28	48.74	49.03
7,867,672	50.00	49.36	48.83	49.11
8,193,334	50.00	49.43	48.91	49.21
8,532,475	50.03	49.52	49.00	49.30
8,885,655	50.06	49.60	49.10	49.40
9,253,453	50.10	49.69	49.21	49.50

9,636,476	50.17	49.78	49.31	49.62
10,035,352	50.25	49.85	49.41	49.73
10,450,739	50.31	49.91	49.51	49.80
10,883,320	50.25	49.92	49.59	49.85
11,333,807	50.02	49.79	49.61	49.76
11,802,940	48.77	49.06	49.50	49.00
12,291,492	49.45	47.82	49.54	49.23
12,800,266	50.06	49.89	49.61	49.90
13,330,099	50.96	50.59	49.71	50.56
13,881,864	51.29	50.84	49.58	50.86
14,456,467	51.50	50.98	49.72	51.04
15,054,854	51.72	51.11	50.03	51.22
15,678,011	51.96	51.28	50.39	51.46
16,326,961	52.15	51.45	50.72	51.69
17,002,772	52.36	51.65	51.04	51.95
17,706,558	52.44	51.81	51.33	52.21
18,439,474	52.26	51.84	51.55	52.42
19,202,728	51.23	51.47	51.57	52.15
19,997,574	50.75	49.97	51.11	51.04
20,825,321	52.57	51.75	50.40	52.42
21,687,331	52.98	52.66	49.27	53.21
22,585,021	53.01	52.79	48.74	53.40
23,519,869	52.87	52.65	49.50	53.37
24,493,412	52.83	52.60	50.48	53.43
25,507,252	52.85	52.56	51.21	53.55
26,563,058	52.79	52.43	51.65	53.61
27,662,566	52.50	51.91	51.77	53.42
28,807,586	52.08	50.69	51.50	53.39
30,000,000	52.26	51.45	50.79	53.89

Frequency (Hz)	Phase L-1 (°)	Phase L-2 (°)	Phase L-3 (°)	Phase N (°)
9,000	71.56	67.15	71.94	74.82
9,373	75.60	71.89	74.81	78.33
9,760	77.84	74.76	77.55	79.78
10,164	79.32	76.58	79.08	81.42
10,585	80.58	78.45	80.25	82.11
11,023	81.13	79.44	80.94	82.63
11,480	81.84	80.01	81.51	83.04
11,955	82.31	80.64	82.05	83.38
12,450	82.50	81.06	82.37	83.50
12,965	82.73	81.38	82.43	83.64
13,502	82.72	81.54	82.53	83.56
14,061	82.83	81.65	82.56	83.53
14,643	82.82	81.84	82.62	83.69
15,249	82.70	81.80	82.65	83.51
15,880	82.62	81.74	82.44	83.41
16,537	82.55	81.71	82.45	83.30
17,222	82.40	81.67	82.28	83.03
17,934	82.22	81.51	82.14	82.84
18,677	82.05	81.35	81.94	82.65
19,450	81.83	81.17	81.69	82.37
20,255	81.59	80.97	81.50	82.11
21,093	81.32	80.76	81.21	81.85
21,966	81.05	80.51	80.96	81.52
22,876	80.70	80.21	80.63	81.17
23,823	80.38	79.89	80.30	80.81
24,809	80.05	79.59	79.96	80.46
25,835	79.69	79.25	79.59	80.07
26,905	79.29	78.88	79.21	79.67
28,019	78.90	78.49	78.80	79.25
29,178	78.47	78.09	78.38	78.79
30,386	78.02	77.66	77.95	78.33
31,644	77.56	77.22	77.48	77.86
32,954	77.09	76.77	77.01	77.37
34,318	76.60	76.29	76.50	76.86
35,738	76.09	75.80	75.99	76.35
37,217	75.54	75.27	75.45	75.78
38,758	74.98	74.71	74.89	75.21
40,362	74.41	74.15	74.33	74.62
42,033	73.81	73.54	73.72	74.00
43,773	73.21	72.96	73.10	73.38

45,585	72.58	72.32	72.47	72.75
47,471	71.91	71.68	71.79	72.07
49,436	71.24	71.01	71.11	71.38
51,483	70.54	70.33	70.41	70.67
53,614	69.82	69.61	69.66	69.93
55,833	69.07	68.87	68.92	69.18
58,144	68.32	68.12	68.15	68.40
60,551	67.52	67.34	67.35	67.60
63,057	66.73	66.55	66.54	66.79
65,667	65.90	65.72	65.69	65.95
68,385	65.05	64.87	64.83	65.09
71,216	64.18	64.00	63.95	64.20
74,164	63.28	63.13	63.06	63.30
77,233	62.36	62.21	62.12	62.38
80,430	61.43	61.28	61.18	61.43
83,760	60.47	60.32	60.21	60.48
87,227	59.50	59.35	59.22	59.49
90,837	58.51	58.36	58.22	58.49
94,597	57.50	57.35	57.20	57.46
98,513	56.48	56.33	56.16	56.43
102,590	55.44	55.30	55.11	55.38
106,837	54.37	54.24	54.04	54.32
111,259	53.30	53.18	52.96	53.25
115,864	52.23	52.10	51.88	52.16
120,660	51.13	51.01	50.77	51.06
125,655	50.03	49.92	49.66	49.96
130,856	48.92	48.81	48.55	48.84
136,272	47.81	47.70	47.43	47.72
141,913	46.68	46.59	46.30	46.59
147,787	45.56	45.47	45.18	45.47
153,904	44.45	44.35	44.06	44.35
160,275	43.32	43.23	42.93	43.23
166,909	42.20	42.11	41.80	42.10
173,817	41.09	41.00	40.69	40.99
181,012	39.99	39.89	39.58	39.88
188,505	38.88	38.80	38.48	38.77
196,307	37.80	37.71	37.39	37.68
204,433	36.72	36.64	36.31	36.61
212,895	35.65	35.57	35.25	35.54
221,707	34.60	34.52	34.19	34.49
230,884	33.56	33.48	33.16	33.45
240,441	32.55	32.47	32.14	32.44
250,393	31.54	31.47	31.14	31.44
260,758	30.56	30.48	30.16	30.44

271,551	29.59	29.51	29.19	29.48
282,791	28.66	28.57	28.26	28.54
294,497	27.73	27.65	27.34	27.62
306,687	26.83	26.74	26.44	26.72
319,381	25.95	25.86	25.56	25.84
332,601	25.08	25.00	24.71	24.98
346,368	24.25	24.16	23.87	24.15
360,705	23.44	23.36	23.07	23.34
375,636	22.64	22.57	22.28	22.55
391,184	21.88	21.80	21.52	21.78
407,376	21.13	21.05	20.77	21.04
424,238	20.42	20.32	20.06	20.32
441,799	19.72	19.61	19.36	19.62
460,086	19.04	18.94	18.69	18.95
479,130	18.39	18.29	18.04	18.30
498,962	17.75	17.66	17.41	17.67
519,615	17.14	17.05	16.81	17.06
541,123	16.55	16.47	16.22	16.47
563,522	15.98	15.89	15.64	15.90
586,847	15.44	15.35	15.11	15.37
611,138	14.91	14.82	14.58	14.83
636,435	14.40	14.32	14.08	14.33
662,778	13.92	13.82	13.59	13.85
690,212	13.45	13.36	13.13	13.38
718,782	12.99	12.91	12.68	12.93
748,534	12.56	12.48	12.25	12.51
779,517	12.15	12.07	11.85	12.10
811,784	11.75	11.68	11.45	11.71
845,385	11.37	11.30	11.08	11.33
880,378	11.01	10.93	10.72	10.98
916,819	10.66	10.59	10.37	10.63
954,768	10.34	10.27	10.05	10.31
994,288	10.02	9.95	9.73	10.00
1,035,444	9.73	9.65	9.44	9.70
1,078,303	9.44	9.38	9.16	9.42
1,122,937	9.17	9.11	8.89	9.16
1,169,418	8.92	8.86	8.64	8.92
1,217,823	8.69	8.62	8.41	8.69
1,268,232	8.46	8.41	8.19	8.48
1,320,727	8.26	8.20	7.99	8.27
1,375,395	8.07	8.02	7.80	8.09
1,432,326	7.90	7.85	7.63	7.92
1,491,613	7.75	7.70	7.47	7.77
1,553,354	7.60	7.55	7.32	7.63

1,617,651	7.47	7.43	7.19	7.51
1,684,610	7.36	7.32	7.08	7.41
1,754,340	7.26	7.23	6.99	7.31
1,826,956	7.16	7.14	6.90	7.23
1,902,578	7.07	7.04	6.80	7.14
1,981,330	6.99	6.97	6.72	7.06
2,063,342	6.89	6.87	6.62	6.97
2,148,749	6.78	6.77	6.51	6.87
2,237,691	6.66	6.65	6.38	6.75
2,330,314	6.52	6.52	6.25	6.61
2,426,771	6.38	6.38	6.10	6.47
2,527,221	6.23	6.23	5.95	6.32
2,631,829	6.08	6.10	5.80	6.18
2,740,766	5.94	5.96	5.66	6.03
2,854,213	5.82	5.84	5.53	5.92
2,972,356	5.71	5.74	5.41	5.82
3,095,389	5.61	5.64	5.31	5.74
3,223,514	5.53	5.56	5.22	5.66
3,356,943	5.45	5.49	5.14	5.59
3,495,895	5.39	5.43	5.07	5.53
3,640,598	5.35	5.40	5.02	5.49
3,791,291	5.31	5.36	4.98	5.46
3,948,222	5.28	5.34	4.94	5.45
4,111,648	5.26	5.32	4.91	5.43
4,281,839	5.25	5.32	4.90	5.42
4,459,075	5.26	5.33	4.89	5.43
4,643,646	5.28	5.36	4.90	5.46
4,835,858	5.32	5.40	4.93	5.50
5,036,026	5.37	5.46	4.97	5.54
5,244,479	5.42	5.51	5.00	5.59
5,461,560	5.45	5.56	5.03	5.62
5,687,627	5.48	5.61	5.06	5.68
5,923,051	5.52	5.66	5.09	5.72
6,168,221	5.59	5.71	5.12	5.79
6,423,538	5.65	5.77	5.18	5.87
6,689,423	5.74	5.85	5.23	5.95
6,966,315	5.83	5.95	5.31	6.04
7,254,667	5.92	6.04	5.37	6.14
7,554,955	6.00	6.14	5.44	6.23
7,867,672	6.10	6.24	5.52	6.33
8,193,334	6.19	6.34	5.59	6.41
8,532,475	6.28	6.44	5.66	6.48
8,885,655	6.37	6.53	5.73	6.57
9,253,453	6.45	6.62	5.80	6.65

9,636,476	6.51	6.68	5.84	6.72
10,035,352	6.55	6.73	5.88	6.79
10,450,739	6.55	6.72	5.90	6.85
10,883,320	6.44	6.68	5.91	6.84
11,333,807	6.21	6.54	5.86	6.72
11,802,940	6.37	6.42	5.89	6.82
12,291,492	8.91	8.38	6.19	8.46
12,800,266	9.00	9.68	6.33	8.74
13,330,099	9.12	9.23	6.35	8.92
13,881,864	8.85	9.01	6.60	8.78
14,456,467	8.78	8.97	7.05	8.80
15,054,854	8.83	9.03	7.34	8.90
15,678,011	8.90	9.11	7.47	9.02
16,326,961	8.95	9.13	7.48	9.08
17,002,772	8.95	9.15	7.41	9.12
17,706,558	8.86	9.08	7.22	9.06
18,439,474	8.67	8.80	6.87	8.88
19,202,728	8.57	8.22	6.28	8.59
19,997,574	11.10	9.27	5.77	9.76
20,825,321	11.03	11.15	5.55	11.17
21,687,331	10.31	10.32	5.95	10.69
22,585,021	9.94	9.85	7.67	10.39
23,519,869	9.71	9.57	9.03	10.26
24,493,412	9.79	9.55	9.35	10.22
25,507,252	9.83	9.46	9.12	10.31
26,563,058	9.79	9.24	8.59	10.30
27,662,566	9.73	8.96	7.86	10.26
28,807,586	10.08	9.49	7.04	10.85
30,000,000	10.42	11.03	6.11	10.64

Frequency (Hz)	Voltage Division Factor L-1 (dB)	Voltage Division Factor L-2 (dB)	Voltage Division Factor L-3 (dB)	Voltage Division Factor N (dB)
9,000	5.10	5.23	5.17	5.28
9,373	3.56	3.85	3.74	4.27
9,760	3.19	3.27	2.93	3.00
10,164	2.50	2.77	2.34	2.46
10,585	2.34	2.54	2.16	2.31
11,023	2.13	2.11	2.02	2.22
11,480	2.02	2.03	2.08	2.18
11,955	1.75	1.94	1.74	1.88
12,450	1.76	1.76	1.65	1.69
12,965	1.64	1.64	1.55	1.62
13,502	1.62	1.56	1.46	1.54
14,061	1.51	1.48	1.37	1.42
14,643	1.45	1.38	1.33	1.42
15,249	1.30	1.38	1.25	1.32
15,880	1.26	1.26	1.21	1.26
16,537	1.21	1.18	1.10	1.21
17,222	1.10	1.11	1.01	1.12
17,934	1.02	1.03	1.01	1.05
18,677	0.98	0.98	0.88	0.98
19,450	0.92	0.90	0.86	0.93
20,255	0.90	0.89	0.80	0.88
21,093	0.86	0.82	0.75	0.81
21,966	0.81	0.75	0.70	0.77
22,876	0.74	0.72	0.66	0.72
23,823	0.68	0.67	0.61	0.70
24,809	0.63	0.62	0.57	0.65
25,835	0.60	0.60	0.52	0.58
26,905	0.55	0.54	0.50	0.55
28,019	0.53	0.52	0.47	0.51
29,178	0.51	0.50	0.43	0.48
30,386	0.45	0.44	0.38	0.44
31,644	0.44	0.43	0.39	0.43
32,954	0.42	0.41	0.35	0.39
34,318	0.38	0.38	0.33	0.38
35,738	0.35	0.35	0.30	0.34
37,217	0.33	0.34	0.28	0.32
38,758	0.32	0.33	0.26	0.30
40,362	0.28	0.30	0.25	0.28
42,033	0.28	0.29	0.23	0.27
43,773	0.27	0.27	0.20	0.26

45,585	0.25	0.25	0.20	0.23
47,471	0.23	0.24	0.19	0.21
49,436	0.21	0.23	0.18	0.20
51,483	0.21	0.21	0.17	0.20
53,614	0.19	0.20	0.15	0.18
55,833	0.19	0.20	0.15	0.19
58,144	0.18	0.20	0.14	0.18
60,551	0.17	0.19	0.14	0.16
63,057	0.16	0.18	0.13	0.16
65,667	0.15	0.17	0.12	0.15
68,385	0.15	0.16	0.13	0.15
71,216	0.13	0.16	0.12	0.14
74,164	0.13	0.15	0.11	0.13
77,233	0.12	0.14	0.11	0.13
80,430	0.13	0.15	0.11	0.12
83,760	0.11	0.14	0.11	0.12
87,227	0.11	0.14	0.10	0.12
90,837	0.11	0.14	0.11	0.12
94,597	0.11	0.13	0.10	0.11
98,513	0.10	0.12	0.10	0.10
102,590	0.10	0.14	0.10	0.11
106,837	0.10	0.13	0.09	0.11
111,259	0.10	0.13	0.10	0.11
115,864	0.10	0.13	0.09	0.10
120,660	0.09	0.12	0.09	0.10
125,655	0.09	0.12	0.09	0.10
130,856	0.09	0.12	0.09	0.10
136,272	0.09	0.12	0.09	0.09
141,913	0.08	0.12	0.09	0.10
147,787	0.08	0.12	0.09	0.10
153,904	0.08	0.12	0.09	0.09
160,275	0.08	0.12	0.09	0.09
166,909	0.08	0.12	0.09	0.10
173,817	0.08	0.12	0.09	0.09
181,012	0.08	0.12	0.09	0.09
188,505	0.08	0.12	0.09	0.09
196,307	0.08	0.12	0.10	0.10
204,433	0.07	0.13	0.09	0.09
212,895	0.08	0.12	0.09	0.09
221,707	0.07	0.13	0.09	0.09
230,884	0.07	0.12	0.09	0.09
240,441	0.07	0.13	0.09	0.09
250,393	0.07	0.13	0.10	0.09
260,758	0.07	0.13	0.09	0.09

271,551	0.07	0.13	0.09	0.09
282,791	0.08	0.13	0.10	0.09
294,497	0.08	0.13	0.09	0.09
306,687	0.07	0.14	0.10	0.09
319,381	0.08	0.14	0.10	0.09
332,601	0.07	0.14	0.10	0.09
346,368	0.08	0.14	0.10	0.09
360,705	0.07	0.15	0.10	0.09
375,636	0.08	0.14	0.10	0.09
391,184	0.07	0.15	0.10	0.09
407,376	0.08	0.14	0.10	0.09
424,238	0.08	0.15	0.10	0.10
441,799	0.07	0.15	0.11	0.10
460,086	0.08	0.15	0.11	0.09
479,130	0.08	0.16	0.11	0.10
498,962	0.08	0.16	0.11	0.10
519,615	0.08	0.16	0.11	0.10
541,123	0.09	0.16	0.11	0.10
563,522	0.08	0.16	0.11	0.10
586,847	0.08	0.16	0.10	0.09
611,138	0.08	0.16	0.11	0.10
636,435	0.08	0.17	0.11	0.11
662,778	0.09	0.17	0.12	0.10
690,212	0.08	0.17	0.12	0.10
718,782	0.09	0.17	0.12	0.10
748,534	0.08	0.17	0.12	0.10
779,517	0.09	0.17	0.12	0.11
811,784	0.08	0.17	0.12	0.10
845,385	0.09	0.18	0.12	0.11
880,378	0.09	0.18	0.13	0.11
916,819	0.09	0.18	0.13	0.11
954,768	0.10	0.18	0.13	0.11
994,288	0.10	0.18	0.13	0.11
1,035,444	0.10	0.19	0.13	0.11
1,078,303	0.10	0.18	0.13	0.11
1,122,937	0.10	0.19	0.13	0.11
1,169,418	0.10	0.19	0.14	0.12
1,217,823	0.10	0.19	0.13	0.12
1,268,232	0.10	0.20	0.14	0.12
1,320,727	0.10	0.19	0.14	0.12
1,375,395	0.10	0.19	0.15	0.12
1,432,326	0.11	0.20	0.15	0.13
1,491,613	0.11	0.20	0.15	0.13
1,553,354	0.11	0.19	0.16	0.13

1,617,651	0.11	0.20	0.16	0.13
1,684,610	0.12	0.20	0.16	0.13
1,754,340	0.11	0.20	0.16	0.14
1,826,956	0.12	0.21	0.17	0.14
1,902,578	0.12	0.21	0.17	0.14
1,981,330	0.13	0.22	0.17	0.15
2,063,342	0.13	0.22	0.19	0.16
2,148,749	0.13	0.22	0.18	0.15
2,237,691	0.13	0.22	0.19	0.16
2,330,314	0.14	0.23	0.19	0.16
2,426,771	0.14	0.23	0.19	0.16
2,527,221	0.14	0.23	0.19	0.16
2,631,829	0.14	0.23	0.20	0.16
2,740,766	0.14	0.23	0.20	0.16
2,854,213	0.15	0.24	0.20	0.17
2,972,356	0.15	0.24	0.21	0.17
3,095,389	0.15	0.24	0.21	0.17
3,223,514	0.16	0.25	0.21	0.18
3,356,943	0.16	0.25	0.22	0.18
3,495,895	0.16	0.25	0.22	0.18
3,640,598	0.17	0.26	0.23	0.19
3,791,291	0.17	0.26	0.23	0.19
3,948,222	0.17	0.27	0.23	0.20
4,111,648	0.18	0.27	0.24	0.20
4,281,839	0.18	0.28	0.24	0.20
4,459,075	0.19	0.28	0.25	0.21
4,643,646	0.19	0.29	0.25	0.21
4,835,858	0.20	0.29	0.26	0.21
5,036,026	0.21	0.30	0.27	0.22
5,244,479	0.22	0.31	0.27	0.23
5,461,560	0.22	0.32	0.28	0.24
5,687,627	0.23	0.33	0.29	0.24
5,923,051	0.24	0.33	0.29	0.25
6,168,221	0.25	0.34	0.30	0.26
6,423,538	0.25	0.34	0.30	0.26
6,689,423	0.26	0.35	0.31	0.27
6,966,315	0.27	0.36	0.32	0.28
7,254,667	0.27	0.37	0.33	0.29
7,554,955	0.29	0.37	0.33	0.29
7,867,672	0.30	0.38	0.34	0.30
8,193,334	0.30	0.39	0.35	0.31
8,532,475	0.32	0.40	0.36	0.32
8,885,655	0.33	0.41	0.37	0.33
9,253,453	0.34	0.43	0.38	0.34

9,636,476	0.35	0.43	0.38	0.35
10,035,352	0.37	0.45	0.40	0.36
10,450,739	0.38	0.46	0.40	0.38
10,883,320	0.39	0.46	0.41	0.38
11,333,807	0.39	0.46	0.40	0.38
11,802,940	0.41	0.43	0.34	0.36
12,291,492	0.50	0.63	0.42	0.46
12,800,266	0.52	0.58	0.46	0.48
13,330,099	0.54	0.59	0.52	0.50
13,881,864	0.55	0.60	0.57	0.52
14,456,467	0.57	0.62	0.60	0.53
15,054,854	0.59	0.64	0.61	0.56
15,678,011	0.62	0.66	0.62	0.58
16,326,961	0.65	0.68	0.64	0.60
17,002,772	0.67	0.70	0.64	0.62
17,706,558	0.68	0.72	0.65	0.64
18,439,474	0.70	0.73	0.64	0.65
19,202,728	0.72	0.73	0.59	0.63
19,997,574	0.89	0.91	0.64	0.77
20,825,321	0.92	1.01	0.80	0.89
21,687,331	0.92	0.98	0.92	0.87
22,585,021	0.92	0.98	1.03	0.87
23,519,869	0.96	1.05	1.08	0.92
24,493,412	0.95	1.00	1.06	0.92
25,507,252	0.93	0.93	1.02	0.91
26,563,058	0.89	0.86	0.95	0.89
27,662,566	0.89	0.86	0.90	0.89
28,807,586	0.91	0.92	0.86	0.92
30,000,000	0.93	0.99	0.86	0.92

Frequency (Hz)	Isolation L-1 (dB)	Isolation L-2 (dB)	Isolation L-3 (dB)	Isolation N (dB)
150,000	-52.52	-51.97	-53.61	-55.44
154,027	-53.04	-52.19	-54.13	-55.41
158,162	-53.55	-52.54	-54.43	-55.55
162,408	-53.91	-52.85	-54.89	-55.39
166,768	-54.22	-53.16	-55.16	-55.32
171,245	-54.57	-53.32	-55.59	-55.46
175,842	-54.96	-53.57	-56.01	-55.49
180,562	-55.42	-53.61	-56.38	-55.24
185,410	-55.80	-53.86	-56.64	-55.05
190,387	-55.94	-54.06	-56.88	-54.88
195,498	-56.08	-54.26	-57.18	-54.71
200,747	-56.51	-54.20	-57.19	-54.44
206,136	-56.45	-54.43	-57.16	-54.27
211,670	-56.86	-54.60	-57.31	-54.16
217,352	-57.17	-54.40	-57.12	-53.91
223,187	-57.15	-54.37	-57.32	-53.79
229,178	-57.51	-54.59	-57.50	-53.69
235,331	-57.29	-54.45	-57.52	-53.28
241,648	-57.63	-54.65	-57.40	-53.14
248,136	-57.60	-54.60	-57.52	-53.07
254,797	-57.95	-54.52	-57.43	-52.94
261,637	-57.82	-54.47	-57.31	-52.81
268,661	-57.81	-54.58	-56.94	-52.65
275,873	-57.68	-54.49	-56.93	-52.48
283,279	-57.75	-54.31	-56.74	-52.47
290,884	-57.92	-54.33	-56.64	-52.32
298,693	-57.58	-54.53	-56.44	-52.27
306,712	-57.49	-54.14	-56.44	-52.16
314,946	-57.64	-54.40	-56.42	-52.00
323,400	-57.55	-54.19	-56.39	-52.04
332,082	-57.38	-54.16	-56.10	-51.85
340,997	-57.18	-54.14	-56.47	-51.81
350,152	-57.26	-54.17	-56.12	-51.79
359,552	-57.21	-54.18	-56.35	-51.65
369,204	-57.33	-54.24	-56.12	-51.50
379,116	-57.06	-54.03	-56.04	-51.43
389,293	-56.91	-54.03	-56.10	-51.54
399,744	-56.91	-54.07	-56.00	-51.55
410,475	-56.84	-53.92	-55.43	-51.40
421,495	-57.05	-53.92	-56.01	-51.38

432,810	-56.74	-54.02	-55.96	-51.28
444,429	-57.06	-54.01	-56.04	-51.19
456,360	-56.77	-53.91	-55.82	-51.28
468,611	-56.71	-53.78	-56.05	-51.13
481,191	-56.88	-53.90	-55.90	-51.13
494,109	-56.90	-53.92	-55.79	-51.06
507,374	-56.89	-53.89	-55.59	-50.96
520,995	-56.80	-53.83	-55.65	-51.03
534,981	-56.52	-53.72	-55.67	-51.01
549,343	-56.67	-53.75	-55.73	-50.98
564,091	-56.56	-53.81	-55.38	-51.00
579,234	-56.51	-53.57	-55.56	-50.97
594,784	-56.56	-53.64	-55.41	-50.94
610,751	-56.41	-53.66	-55.38	-50.81
627,147	-56.25	-53.58	-55.50	-50.93
643,983	-56.48	-53.80	-55.41	-50.76
661,271	-56.43	-53.59	-55.27	-50.82
679,024	-56.15	-53.62	-55.41	-50.90
697,252	-56.40	-53.57	-55.39	-50.73
715,971	-56.45	-53.61	-55.28	-50.78
735,191	-56.21	-53.58	-55.23	-50.79
754,928	-56.27	-53.67	-55.17	-50.72
775,194	-56.39	-53.52	-55.24	-50.73
796,005	-56.16	-53.61	-55.19	-50.74
817,374	-56.41	-53.62	-55.11	-50.71
839,317	-56.23	-53.61	-55.17	-50.71
861,849	-56.32	-53.49	-55.17	-50.78
884,986	-56.21	-53.40	-55.18	-50.71
908,744	-56.07	-53.40	-55.09	-50.74
933,140	-56.20	-53.55	-55.10	-50.73
958,190	-56.12	-53.37	-54.88	-50.70
983,914	-56.44	-53.72	-54.96	-50.63
1,010,327	-56.15	-53.46	-55.13	-50.70
1,037,450	-56.14	-53.36	-55.00	-50.68
1,065,301	-56.11	-53.43	-55.12	-50.69
1,093,900	-56.15	-53.38	-54.82	-50.52
1,123,266	-56.06	-53.38	-55.03	-50.64
1,153,421	-56.10	-53.43	-54.87	-50.64
1,184,385	-56.14	-53.51	-54.95	-50.62
1,216,181	-56.02	-53.50	-55.17	-50.63
1,248,830	-56.29	-53.41	-54.86	-50.64
1,282,355	-55.88	-53.42	-54.77	-50.66
1,316,781	-55.90	-53.36	-55.05	-50.73
1,352,131	-55.93	-53.55	-54.99	-50.70

1,388,430	-56.10	-53.30	-54.68	-50.72
1,425,703	-56.12	-53.50	-54.95	-50.72
1,463,977	-55.99	-53.24	-54.85	-50.72
1,503,278	-55.98	-53.35	-54.80	-50.59
1,543,634	-56.08	-53.31	-54.81	-50.67
1,585,074	-56.02	-53.45	-54.93	-50.75
1,627,627	-56.16	-53.29	-54.68	-50.72
1,671,321	-56.22	-53.44	-54.82	-50.63
1,716,189	-56.08	-53.34	-54.89	-50.75
1,762,261	-56.05	-53.44	-54.75	-50.78
1,809,570	-56.21	-53.37	-54.83	-50.69
1,858,149	-56.16	-53.45	-54.94	-50.68
1,908,032	-56.30	-53.33	-54.83	-50.66
1,959,254	-56.34	-53.55	-54.96	-50.68
2,011,852	-56.32	-53.44	-54.77	-50.64
2,065,861	-56.37	-53.50	-55.03	-50.79
2,121,320	-56.38	-53.64	-55.16	-50.69
2,178,268	-56.41	-53.75	-54.93	-50.67
2,236,745	-56.24	-53.61	-55.05	-50.62
2,296,792	-56.45	-53.58	-55.04	-50.67
2,358,451	-56.47	-53.70	-55.02	-50.71
2,421,765	-56.60	-53.68	-55.26	-50.84
2,486,779	-56.50	-53.89	-54.96	-50.98
2,553,538	-56.74	-53.93	-55.10	-51.08
2,622,089	-56.50	-53.69	-55.15	-51.07
2,692,481	-56.88	-53.70	-55.13	-51.03
2,764,762	-56.67	-53.86	-55.18	-51.01
2,838,984	-56.71	-53.77	-55.18	-51.00
2,915,198	-56.82	-53.75	-55.02	-50.91
2,993,458	-56.85	-53.87	-55.16	-50.85
3,073,819	-56.86	-53.89	-55.02	-50.85
3,156,338	-56.69	-53.90	-55.09	-50.80
3,241,072	-56.86	-53.86	-55.02	-50.82
3,328,080	-56.95	-53.85	-55.01	-50.70
3,417,425	-56.69	-53.71	-55.02	-50.75
3,509,168	-56.74	-53.67	-55.00	-50.54
3,603,373	-56.95	-53.51	-54.93	-50.57
3,700,108	-56.88	-53.65	-54.88	-50.54
3,799,440	-56.68	-53.68	-54.75	-50.48
3,901,438	-56.79	-53.61	-54.72	-50.41
4,006,174	-57.07	-53.77	-54.93	-50.65
4,113,723	-56.71	-53.56	-54.70	-50.50
4,224,158	-56.82	-53.63	-55.02	-50.39
4,337,558	-56.83	-53.57	-54.62	-50.27

4,454,002	-56.74	-53.55	-54.77	-50.15
4,573,573	-57.09	-53.54	-54.49	-50.24
4,696,353	-57.06	-53.36	-54.51	-50.15
4,822,430	-56.89	-53.60	-54.41	-49.91
4,951,891	-57.09	-53.57	-54.36	-50.08
5,084,827	-56.90	-53.46	-54.21	-50.02
5,221,333	-56.80	-53.46	-54.44	-49.70
5,361,502	-56.91	-53.48	-54.15	-50.16
5,505,435	-57.32	-53.59	-54.12	-49.89
5,653,232	-57.04	-53.54	-54.19	-49.74
5,804,996	-57.57	-53.11	-54.18	-50.70
5,960,835	-57.12	-53.22	-53.57	-51.03
6,120,857	-57.22	-53.68	-53.91	-50.60
6,285,175	-57.83	-54.22	-54.04	-51.12
6,453,905	-57.69	-53.99	-54.23	-51.37
6,627,164	-57.71	-54.15	-54.02	-51.27
6,805,074	-57.96	-54.22	-53.95	-51.06
6,987,760	-57.83	-53.96	-53.90	-51.05
7,175,351	-58.00	-54.19	-53.68	-50.73
7,367,978	-58.22	-54.23	-53.78	-50.78
7,565,776	-58.51	-54.27	-53.74	-50.62
7,768,883	-58.48	-54.48	-53.72	-50.58
7,977,444	-58.50	-54.49	-53.95	-50.65
8,191,603	-58.61	-54.63	-54.09	-50.59
8,411,512	-58.85	-54.74	-54.37	-50.71
8,637,324	-59.08	-54.93	-54.71	-50.76
8,869,198	-59.48	-55.37	-55.60	-50.92
9,107,297	-59.79	-55.42	-56.57	-51.08
9,351,788	-60.18	-55.82	-57.68	-51.14
9,602,842	-60.45	-56.24	-58.90	-51.40
9,860,637	-60.72	-56.94	-60.67	-51.89
10,125,351	-60.55	-57.56	-63.26	-51.93
10,397,173	-61.00	-58.06	-65.11	-52.22
10,676,291	-60.79	-58.09	-66.38	-53.64
10,962,903	-59.92	-58.16	-70.03	-54.99
11,257,208	-58.12	-57.48	-70.90	-56.23
11,559,415	-54.67	-55.26	-66.55	-63.84
11,869,735	-49.80	-51.67	-61.20	-54.67
12,188,385	-49.82	-47.87	-58.58	-47.14
12,515,589	-52.36	-46.63	-58.06	-45.79
12,851,578	-51.01	-48.86	-57.30	-45.22
13,196,586	-50.51	-50.00	-57.59	-44.62
13,550,857	-51.45	-50.70	-57.26	-44.55
13,914,638	-51.93	-51.12	-55.99	-44.60

14,288,185	-52.05	-51.37	-54.88	-44.54
14,671,760	-51.99	-51.09	-54.09	-44.37
15,065,632	-51.81	-50.81	-53.83	-44.09
15,470,078	-51.64	-50.56	-53.55	-43.93
15,885,382	-51.35	-50.26	-53.31	-44.05
16,311,834	-50.88	-49.79	-53.24	-44.09
16,749,736	-50.35	-49.08	-52.82	-43.50
17,199,392	-49.56	-48.45	-52.35	-43.07
17,661,121	-48.66	-47.55	-51.96	-42.69
18,135,244	-47.39	-46.56	-51.41	-42.40
18,622,096	-45.88	-45.22	-50.88	-42.55
19,122,017	-43.99	-43.71	-50.26	-42.83
19,635,359	-42.60	-42.02	-49.83	-42.80
20,162,483	-45.01	-41.71	-49.44	-43.80
20,703,757	-50.39	-45.74	-48.84	-49.68
21,259,562	-55.04	-50.25	-47.30	-54.27
21,830,287	-56.49	-51.97	-46.20	-52.92
22,416,335	-55.55	-51.43	-45.61	-50.54
23,018,115	-55.43	-51.07	-46.15	-49.55
23,636,050	-55.20	-50.96	-47.37	-47.62
24,270,574	-54.96	-50.55	-49.10	-46.52
24,922,133	-55.25	-50.32	-52.04	-45.87
25,591,183	-55.97	-50.61	-57.53	-45.19
26,278,193	-56.47	-51.33	-64.24	-44.62
26,983,647	-57.12	-52.02	-61.58	-43.96
27,708,040	-57.00	-52.54	-59.23	-43.29
28,451,879	-56.11	-53.13	-56.81	-42.76
29,215,687	-55.99	-52.93	-54.96	-42.63
30,000,000	-55.60	-53.00	-54.07	-42.36

End of Calibration Report: (CISPR 16-1-2)(4 Lines) LISN cert. rev. 2