NT-30-05-007-LP-VL

EMITECH ILE DE FRANCE

3/10 METERS OPEN AREA TEST SITE

UPDATE FILING FOR FCC REGISTRATION

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0	04th March 05	Creation	L. PERSIDE	LP	E. COEURET	

CONTENTS

1. *INTRODUCTION*

This document presents a description of any changes made to our facility and recent site attenuation data.

The test site concerned (conducted emissions and immunity tests) is located at the following address:

EMITECH ILE DE FRANCE
3, rue des coudriers
Z.A de l'observatoire
F-78180 Montigny le Bretonneux FRANCE

Phone No: (33) 01 30 57 55 55
Fax No: (33) 01 30 57 86 32
Web site: www.emitech.fr

And the Open Area Test site is located at the following address:

EMITECH champ libre
1 lot chemin des vignes
F-28700 AUNAINVILLE, FRANCE

The test site registration number is:
910701

The FCC Registration Number (FRN) is:
0006-6576-62

The current contact names are:

Mr Lionel Perside
Phone N°: (33) 1 30 57 87 08
Fax N°: (33) 01 30 57 86 32
Email: l.perside@emitech.fr

And

Mr Bras Dominique
Phone N°: (33) 1 30 57 87 07
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2. *DESCRIPTION OF ANY CHANGES MADE TO OUR FACILITY*

The changes relate primarily to the acquisition of additional testing equipments (noted new in the following tables).

2.1. *RADIATED EMISSION EQUIPMENTS*

N°	INSTRUMENT	MANUFACTURER And TYPE	SPECIFICATION	DATE OF CALIBRATION VALIDITY	
181	CISPR EMI Receiver	Rohde & Schwarz ESH3	9KHz - 30 MHz	25/03/2006	
1216	CISPR EMI Receiver	Rohde & Schwarz ESVS10	20 MHz -1 GHz	28/02/2007	
1057	CISPR EMI Receiver	Rohde & Schwarz ESVP	20 MHz-1300 MHz	17/07/2005	
2160	Spectrum analyser	Agilent E7405A	9 kHz - 26GHz	04/03/2006	
2205	Spectrum analyser	Agilent E7405A	9 kHz - 26GHz	06/12/2006	
	Half-Wave Dipole antenna	EMCO			
1384		2xDB1	30MHz-60MHz	16/10/2005	
1383		2xDB2	60MHz-140MHz	16/10/2005	
1382		2xDB3	140MHz-400MHz	16/10/2005	
1381		2xDB4	400MHz-1GHz	16/10/2005	
317	Biconical antenna	Scharzbeck 30/300	30MH –300MHz	04/08/2005	
1144	Biconical antenna	Scharzbeck VHBA 9123	30MHz-300MHz	04/08/2005	
3206	Log periodic antenna	Electro-Metrics 3146	300MHz-1000MHz	15/05/2005	
3106	Log periodic antenna	Scharzbeck UHALP 9108	300 MHz-1000MHz	04/08/2005	
1734	Horn antenna	EMCO 3115	1-18 GHz	22/03/2006	
315	Loop antenna	Rohde & Schwarz HFH2-Z2	9 kHz-30MHz	05/03/2006	New
1045	Horn antenna	Oritel CM 42-25	18-26 GHz	04/10/2006	New
3229	Preamplifier	Miteq 1 – 26 GHz	1 – 26 GHz	26/01/2005	New

2.2. *CONDUCTED POWERLINE EQUIPMENTS*

N°	INSTRUMENT	MANUFACTURER and TYPE	SPECIFICATION	DATE OF CALIBRATION VALIDITY	
03226	LISN	Rohde & Schwarz ESH2-Z5	9 kHz – 30 MHz	02/02/2006	
833	LISN	PMM L3-25	9 kHz – 30 MHz	05/09/2006	
0241	Transient Limiter	Rohde & Schwarz ESH3-Z2	9 kHz – 30 MHz	27/03/2006	

3. *SITE ATTENUATION DATA*

3.1. *GENERAL*

The test site suitability has been evaluated by measuring the site attenuation at distances of 3 and 10 meters, in the frequency range from 30 MHz to 1000 MHz.

Results were found to harmonize with theorical models described ANSI C63.4, CISPR 16-1, and CISPR 22, with a maximum deviation of +/- 4dB, which is acceptable in comparison with the requirements of the standard mentioned.

3.2. *REFERENCE STANDARDS*

- CISPR 16-1: Specification for radio disturbance and immunity measuring apparatus and methods
  Part 1: Radio disturbance and immunity measuring apparatus.

- CISPR 16-2: Specification for radio disturbance and immunity measuring apparatus and methods
  Part 2: Methods of measurement of disturbance and immunity.

- CISPR 22: Information technology equipment. Radio disturbance characteristics limits and methods of measurement.

- ANSI C63.4: Methods of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

- ANSI C63.2: American National Standard for Electromagnetic Noise and Field Strength Instrumentation, 10 Hz to 40 GHz – Specifications.

- ANSI C63.5: American National Standard for Calibration of Antennas Used for Radiated Emission Measurements in Electromagnetic Interference (EMI) Control Calibration of Antennas (9 kHz to 40 GHz).

- ANSI C63.6: American National Standard Guide for the Computation of Errors in Open-Area Test Site Measurements.

- ANSI C63.7: American National Standard Guide for Construction of Open-Area Test Sites for Performing Radiated Emission Measurements.

3.3. *SITE ATTENUATION USING SWEPT FREQUENCIES AND BROADBAND ANTENNAS*

The following method is used for comparing deviations of measured NSA data from the NSA comparisons with the values for ideal site obtained ANSI C63.4/1992 standard
(Tables 1 through 4).

The test results are obtained as follow:

The tracking ESVP receiver is used.

1. We raise the receiving antenna on the mast to the maximum height of the scan range as indicates in the table 1 of the ANSI C63.4 standard.

2. Slowly lower the receiving antenna to the minimum eight of the scan range as indicated in the tables for the appropriate site geometry. We store and record the maximum received voltage display in dB (μV).

3. We disconnect the transmit and receive cables from the antennas and connect directly together with a straight-through adapter. We store and record the resulting voltage display.

4. At each frequency, we subtract the voltage measured in the step 4 from the voltage measured in step 3 Also we subtract the antenna factors for the transmit and receive antennas, Afr and Aft (dB/m). Antenna factors as a continuous function of frequency and are obtained using the calibration antennas described in ANSI C63.5 standard.
   The result is the measured NSA over the range of frequencies used, which are plotted. Are also plotted the theoretical NSA for an ideal site

5. It may have been noticed that site attenuation equation given does not account for cables losses. By connecting both cables end to end, all cables losses are accounted in the measurement of site attenuation and therefore need not to be included in the theorical equation.

3.4. TEST RESULTS

The site attenuation data for the various distances are plotted in the following order:

Table 4-1: 3 meter distance - Site attenuation - Horizontal polarisation, h_1 = 1 m

Table 4-2: 3 meter distance - Site attenuation - Vertical polarisation, h_1 = 1 m

Table 4-3: 3 meter distance - Site attenuation - Vertical polarisation, h_1 = 1.5 m

Table 4-4: 10 meter distance - Site attenuation - Horizontal polarisation, h_1 = 1 m

Table 4-5: 10 meter distance - Site attenuation - Vertical polarisation, h_1 = 1 m

Table 4-6: 10 meter distance - Site attenuation - Vertical polarisation, h_1 = 1.5 m

and:

Figure 4-5: 3 meter distance - Site attenuation - Horizontal polarisation, h_1 = 1 m

Figure 4-6: 3 meter distance - Site attenuation - Vertical polarisation, h_1 = 1 m

Figure 4-7: 3 meter distance - Site attenuation - Vertical polarisation, h_1 = 1.5 m

Figure 4-8: 10 meter distance - Site attenuation - Horizontal polarisation, h_1 = 1 m

Figure 4-9: 10 meter distance - Site attenuation - Vertical polarisation, h_1 = 1 m

Figure 4-10: 10 meter distance - Site attenuation - Vertical polarisation, h_1 = 1.5 m

As it can be seen, the recorded data, in frequency range from 30 to 1000 MHz, are in agreement with the model proposed in ANSI C63.4/1992 within the +/-4dB limit mentioned.

Thus the test site is considered available to provide test data for radiated emission product qualification following:

FCC Rules, CFR 47 Part 15, subpart B, Class A and B
EN 55022(CISPR 22), Class A and B
CISPR 16-1

Table 4-1: 3 Meter distance - Site attenuation - Horizontal polarisation, h1=1m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 3m / h1=1m							
HORIZONTAL							
Frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Horizontal dB
30	11,76	17,36	1,3	15,8	50	19,58	3,78
35	9,68	15,48	1,5	13,4	43	16,34	2,94
40	9,41	14,01	1,6	11,3	37,6	12,58	1,28
45	8,22	12,22	1,6	9,4	34	11,96	2,56
50	7,78	10,48	1,8	7,8	30,4	10,34	2,54
60	8,42	7,32	2,0	5	23,3	5,56	0,56
70	8,69	5,69	2,1	2,8	20	3,52	0,72
80	9,27	6,37	2,2	0,9	19,3	1,46	0,56
90	9,03	7,83	2,4	-0,7	20,2	0,94	1,64
100	10,04	11,54	2,5	-2	21,1	-2,98	-0,98
120	10,53	12,63	2,8	-4,2	22,9	-3,06	1,14
125	10,61	12,91	2,8	-4,7	23,2	-3,12	1,58
140	11,10	13,80	3,1	-6	23,9	-4,10	1,90
150	11,75	14,15	3,2	-6,7	24,4	-4,70	2,00
160	12,38	14,88	3,3	-7,4	24,5	-6,06	1,34
175	13,77	15,67	3,5	-8,3	24,6	-8,34	-0,04
180	14,24	15,94	3,5	-8,6	24,5	-9,19	-0,59
200	15,35	17,15	3,7	-9,6	25,8	-10,40	-0,80
250	18,77	19,27	4,3	-11,7	29,9	-12,44	-0,74
300	21,91	21,91	4,7	-12,8	35,9	-12,62	0,18
400	16,41	16,11	5,7	-14,8	25	-13,22	1,58
500	17,93	18,33	6,6	-17,3	26,1	-16,76	0,54
600	19,57	19,57	7,3	-19,1	28,8	-17,64	1,46
700	20,74	21,34	8,0	-20	30,6	-19,48	0,52
800	21,42	22,02	8,8	-21,3	31,8	-20,44	0,86
900	22,63	23,43	9,4	-22,5	33,3	-22,16	0,34
1000	23,89	25,09	10,2	-23,5	34,9	-24,28	-0,78

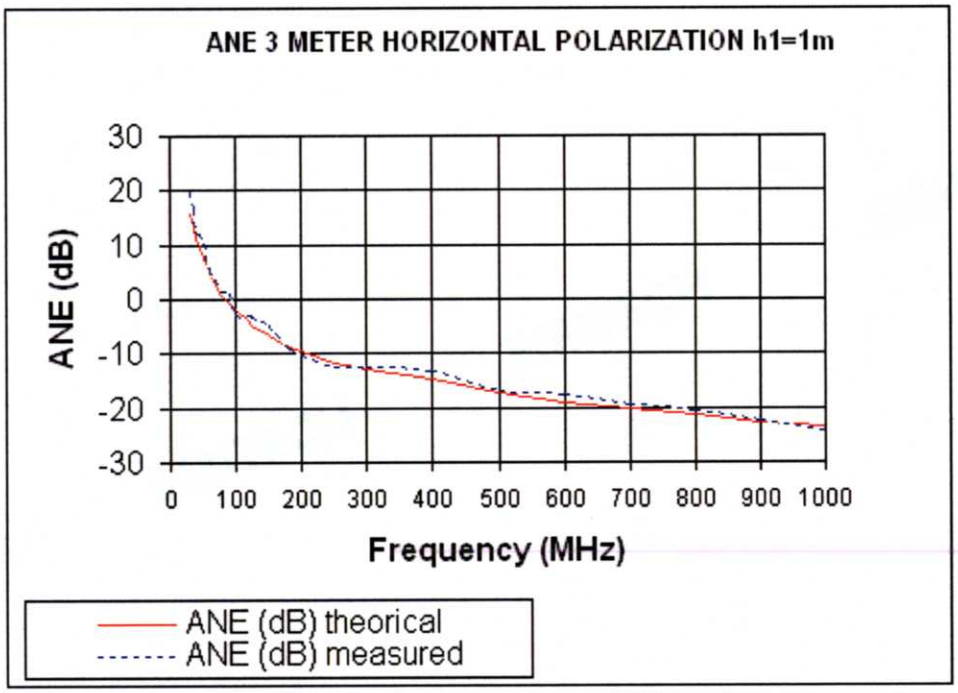

ANE 3 METER HORIZONTAL POLARIZATION h1=1m
ANE (dB)
30
20
10
0
-10
-20
-30
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured

Table 4- 2: 3 Meter distance - Site attenuation -Vertical polarisation, h_1 = 1 m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 3m / h1=1m							
VERTICAL							
Frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Vertical dB
30	11,76	17,36	1,3	8,2	40,6	10,18	1,98
35	9,68	15,48	1,5	6,9	33,7	7,04	0,14
40	9,41	14,01	1,6	5,8	30,3	5,28	-0,52
45	8,22	12,22	1,6	4,9	27,3	5,26	0,36
50	7,78	10,48	1,8	4	25,8	5,74	1,74
60	8,42	7,32	2,0	2,6	21,7	3,96	1,36
70	8,69	5,69	2,1	1,5	21,1	4,62	3,12
80	9,27	6,37	2,2	0,6	21,4	3,56	2,96
90	9,03	7,83	2,4	-0,1	22,0	2,74	2,84
100	10,04	11,54	2,5	-0,7	21,2	-2,88	-2,18
120	10,53	12,63	2,8	-1,5	23,8	-2,16	-0,66
125	10,61	12,91	2,8	-1,6	24,2	-2,12	-0,52
140	11,10	13,80	3,1	-1,8	26,0	-2,00	-0,20
150	11,75	14,15	3,2	-1,8	28,1	-1,00	0,80
160	12,38	14,88	3,3	-1,7	30,3	-0,26	1,44
175	13,77	15,67	3,5	-1,4	32,9	-0,04	1,36
180	14,24	15,94	3,5	-1,3	32,0	-1,69	-0,39
200	15,35	17,15	3,7	-3,6	33,1	-3,10	0,50
250	18,77	19,27	4,3	-7,7	35,2	-7,14	0,56
300	21,91	21,91	4,7	-10,5	37,2	-11,32	-0,82
400	16,41	16,11	5,7	-14	24,1	-14,12	-0,12
500	17,93	18,33	6,6	-16,4	26,0	-16,86	-0,46
600	19,57	19,57	7,3	-16,3	30,0	-16,44	-0,14
700	20,74	21,34	8,0	-18,4	31,7	-18,38	0,02
800	21,42	22,02	8,8	-20	33,4	-18,84	1,16
900	22,63	23,43	9,4	-21,3	34,3	-21,16	0,14
1000	23,89	25,09	10,2	-22,4	36,1	-23,08	-0,68

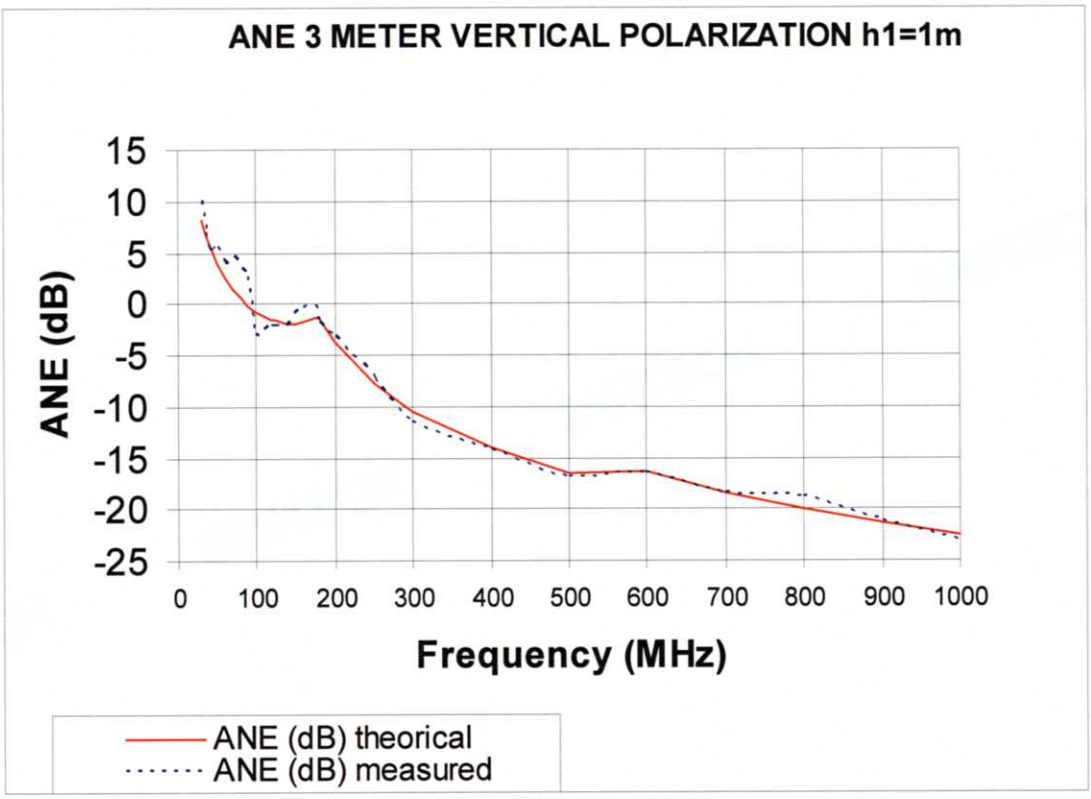

ANE 3 METER VERTICAL POLARIZATION h1=1m
ANE (dB)
15
10
5
0
-5
-10
-15
-20
-25
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured

Table 4- 3: 3 Meter distance - Site Attenuation - Vertical polarisation, h_1 = 1,5 m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1.5 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 3m / h1=1.5m							
VERTICAL							
Frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Vertical dB
30	11,76	17,36	1,3	9,3	42,2	11,78	2,48
35	9,68	15,48	1,5	8	36,8	10,14	2,14
40	9,41	14,01	1,6	7	31,6	6,58	-0,42
45	8,22	12,22	1,6	6,1	28,3	6,26	0,16
50	7,78	10,48	1,8	5,4	26,6	6,54	1,14
60	8,42	7,32	2,0	4,1	22,4	4,66	0,56
70	8,69	5,69	2,1	3,2	20,6	4,12	0,92
80	9,27	6,37	2,2	2,6	22,1	4,26	1,66
90	9,03	7,83	2,4	2,1	22,7	3,44	1,34
100	10,04	11,54	2,5	1,9	22,3	-1,78	-3,68
120	10,53	12,63	2,8	1,3	25,6	-0,36	-1,66
125	10,61	12,91	2,8	0,5	26,1	-0,22	-0,72
140	11,10	13,80	3,2	-1,5	29,7	1,60	3,10
150	11,75	14,15	3,2	-2,6	30,1	1,00	3,60
160	12,38	14,88	3,3	-3,7	30,0	-0,56	3,14
175	13,77	15,67	3,5	-4,9	29,1	-3,84	1,06
180	14,24	15,94	3,5	-5,3	28,8	-4,89	0,41
200	15,35	17,15	3,7	-6,7	32,6	-3,60	3,10
250	18,77	19,27	4,3	-9,1	33,2	-9,14	-0,04
300	21,91	21,91	4,7	-10,9	36,4	-12,12	-1,22
400	16,41	16,11	5,7	-12,6	25,1	-13,12	-0,52
500	17,93	18,33	6,6	-15,1	27,4	-15,46	-0,36
600	19,57	19,57	7,3	-16,9	29,8	-16,64	0,26
700	20,74	21,34	8,0	-18,4	30,8	-19,28	-0,88
800	21,42	22,02	8,8	-19,3	33,4	-18,84	0,46
900	22,63	23,43	9,4	-20,4	34,7	-20,76	-0,36
1000	23,89	25,09	10,2	-21,4	36,4	-22,78	-1,38

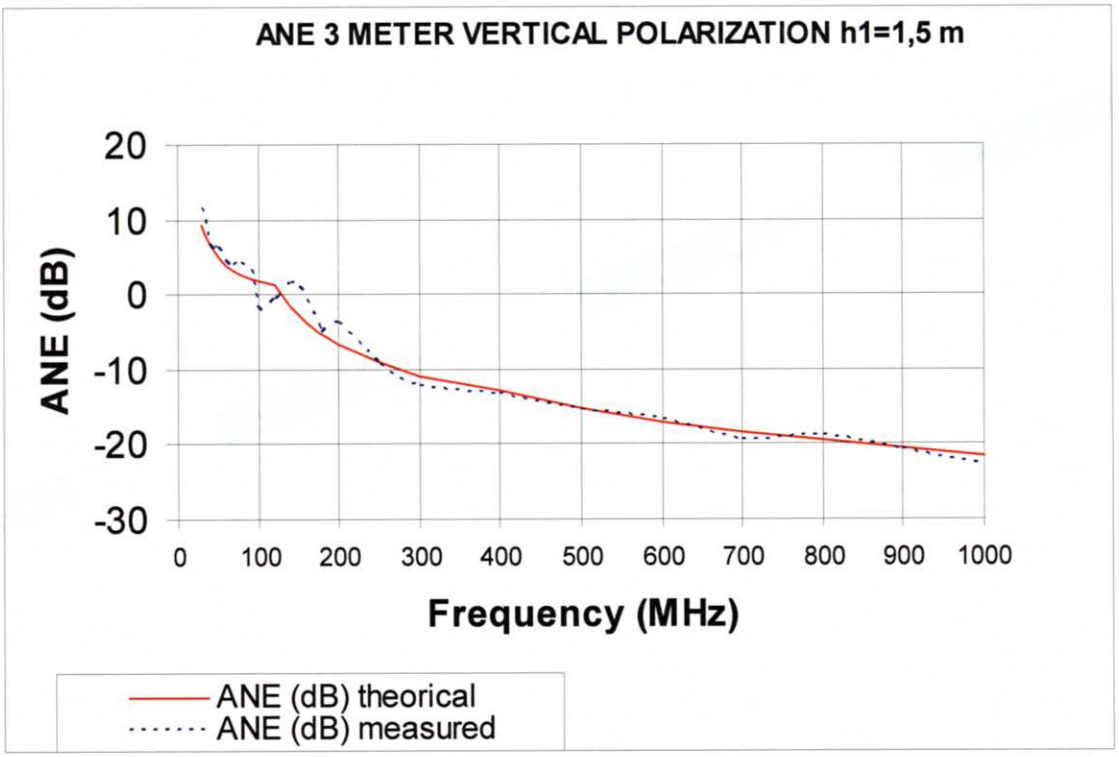

ANE 3 METER VERTICAL POLARIZATION h1=1,5 m
ANE (dB)
20
10
0
-10
-20
-30
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured

Table 4-4: 10 Meter distance - Site attenuation -Horizontal polarisation, h1=1m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 10m / h1=1m							
HORIZONTAL							
frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Horizontal dB
30	12,61	19,01	1,3	29,8	62,7	29,78	-0,02
35	10,78	17,08	1,5	27,1	55,4	26,04	-1,06
40	9,86	15,26	1,6	24,9	51,1	24,38	-0,52
45	8,97	13,67	1,6	22,9	46,5	22,26	-0,64
50	8,73	12,03	1,8	21,1	42,8	20,24	-0,86
60	8,62	8,32	2,0	18	36,2	17,26	-0,74
70	8,74	6,94	2,1	15,5	32,8	15,02	-0,48
80	8,97	6,57	2,2	13,3	31,5	13,76	0,46
90	9,58	8,58	2,4	11,4	32,9	12,34	0,94
100	10,69	10,89	2,5	9,7	33,6	9,52	-0,18
120	10,53	12,33	2,8	7	33,8	8,14	1,14
125	10,51	12,81	2,8	6,4	33,9	7,78	1,38
140	11,40	14,10	3,1	4,8	34,5	5,90	1,10
150	12,10	14,60	3,2	3,9	34,2	4,30	0,40
160	12,78	15,28	3,3	3,1	34,2	2,84	-0,26
175	13,72	15,42	3,5	2	34,2	1,56	-0,44
180	13,94	15,24	3,5	1,7	33,8	1,11	-0,59
200	15,45	16,25	3,7	0,6	35,8	0,40	-0,20
250	17,67	18,27	4,3	-1,6	38,8	-1,44	0,16
300	21,01	20,51	4,7	-3,3	42,2	-4,02	-0,72
400	16,36	15,76	5,7	-5,9	31,3	-6,52	-0,62
500	17,83	19,23	6,6	-7,9	34,2	-9,46	-1,56
600	19,77	19,67	7,3	-9,5	36	-10,74	-1,24
700	21,29	21,29	8,0	-10,8	37,8	-12,78	-1,98
800	20,97	21,37	8,8	-12	39,1	-12,04	-0,04
900	21,73	22,53	9,4	-12,8	41,7	-11,96	0,84
1000	22,09	23,19	10,2	-13,8	43,7	-11,78	2,02

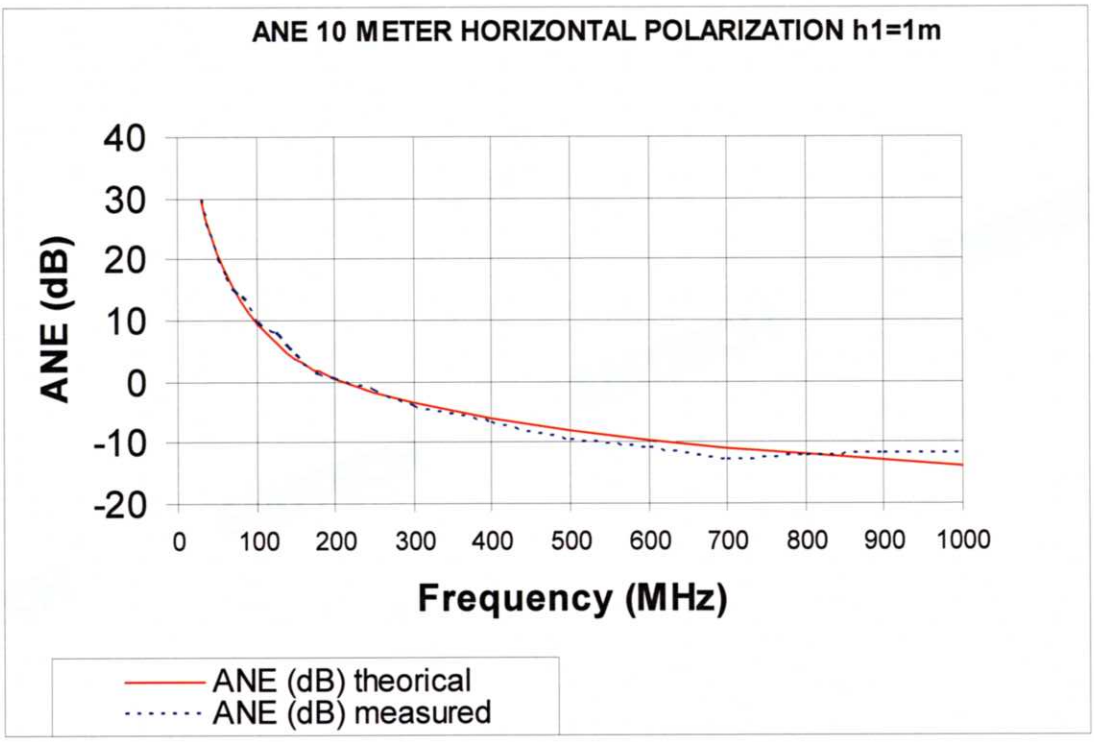

ANE 10 METER HORIZONTAL POLARIZATION h1=1m
ANE (dB)
40
30
20
10
0
-10
-20
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured

Table 4-5: 10 Meter distance - Site attenuation –Vertical polarisation, h_1 = 1 m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 10m / h1=1m							
			VERTICAL				
Frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Vertical dB
30	12,61	19,01	1,3	16,7	47,5	14,58	-2,12
35	10,78	17,08	1,5	15,4	42,8	13,44	-1,96
40	9,86	15,26	1,6	14,2	38,6	11,88	-2,32
45	8,97	13,67	1,6	13,2	35,5	11,26	-1,94
50	8,73	12,03	1,8	12,3	33,8	11,24	-1,06
60	8,62	8,32	2,0	10,7	30,7	11,76	1,06
70	8,74	6,94	2,1	9,4	30	12,22	2,82
80	8,97	6,57	2,2	8,3	26,7	8,96	0,66
90	9,58	8,58	2,4	7,3	27,6	7,04	-0,26
100	10,69	10,89	2,5	6,4	28,8	4,72	-1,68
120	10,53	12,33	2,8	4,9	31,6	5,94	1,04
125	10,51	12,81	2,8	4,6	31,3	5,18	0,58
140	11,40	14,10	3,1	3,7	32,7	4,10	0,40
150	12,10	14,60	3,2	3,1	34,4	4,50	1,40
160	12,78	15,28	3,3	2,6	35,5	4,14	1,54
175	13,72	15,42	3,5	2	35,3	2,66	0,66
180	13,94	15,24	3,5	1,8	34,8	2,11	0,31
200	15,45	16,25	3,7	1	36,5	1,10	0,10
250	17,67	18,27	4,3	-0,5	39,6	-0,64	-0,14
300	21,01	20,51	4,7	-1,5	41,9	-4,32	-2,82
400	16,36	15,76	5,7	-4,1	34,7	-3,12	0,98
500	17,83	19,23	6,6	-6,7	35,8	-7,86	-1,16
600	19,77	19,67	7,3	-8,7	37,8	-8,94	-0,24
700	21,29	21,29	8,0	-10,2	38,5	-12,08	-1,88
800	20,97	21,37	8,8	-11,5	41,2	-9,94	1,56
900	21,73	22,53	9,4	-12,6	42	-11,66	0,94
1000	22,09	23,19	10,2	-13,6	44,1	-11,38	2,22

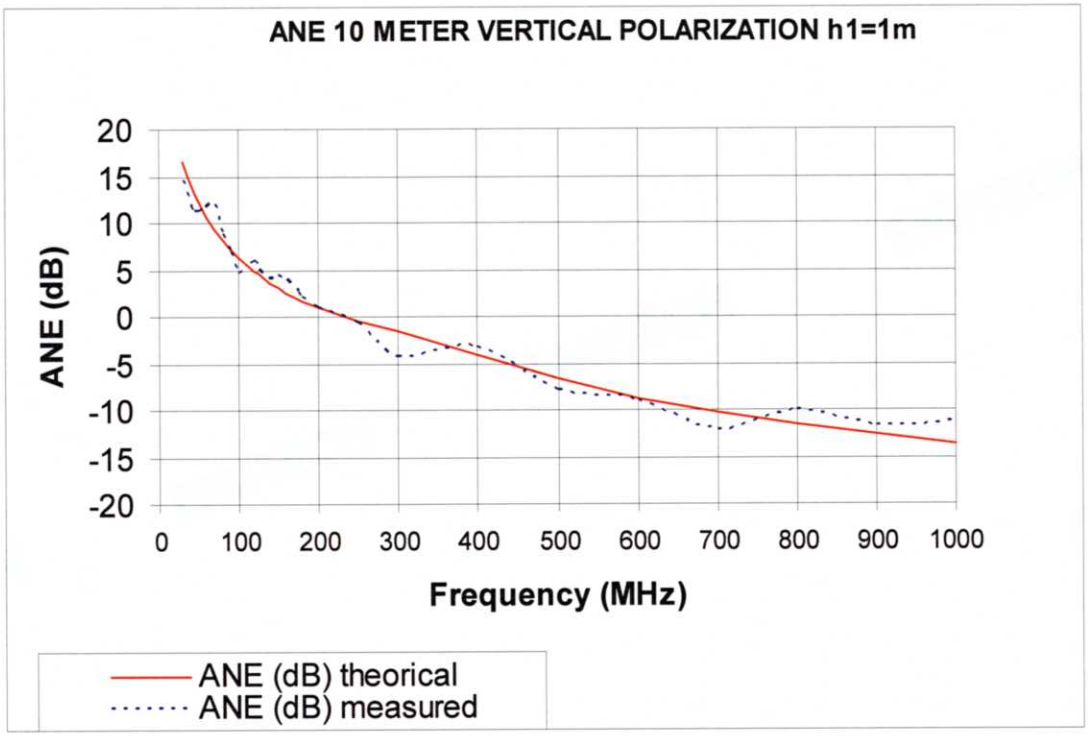

ANE 10 METER VERTICAL POLARIZATION h1=1m
ANE (dB)
20
15
10
5
0
-5
-10
-15
-20
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured

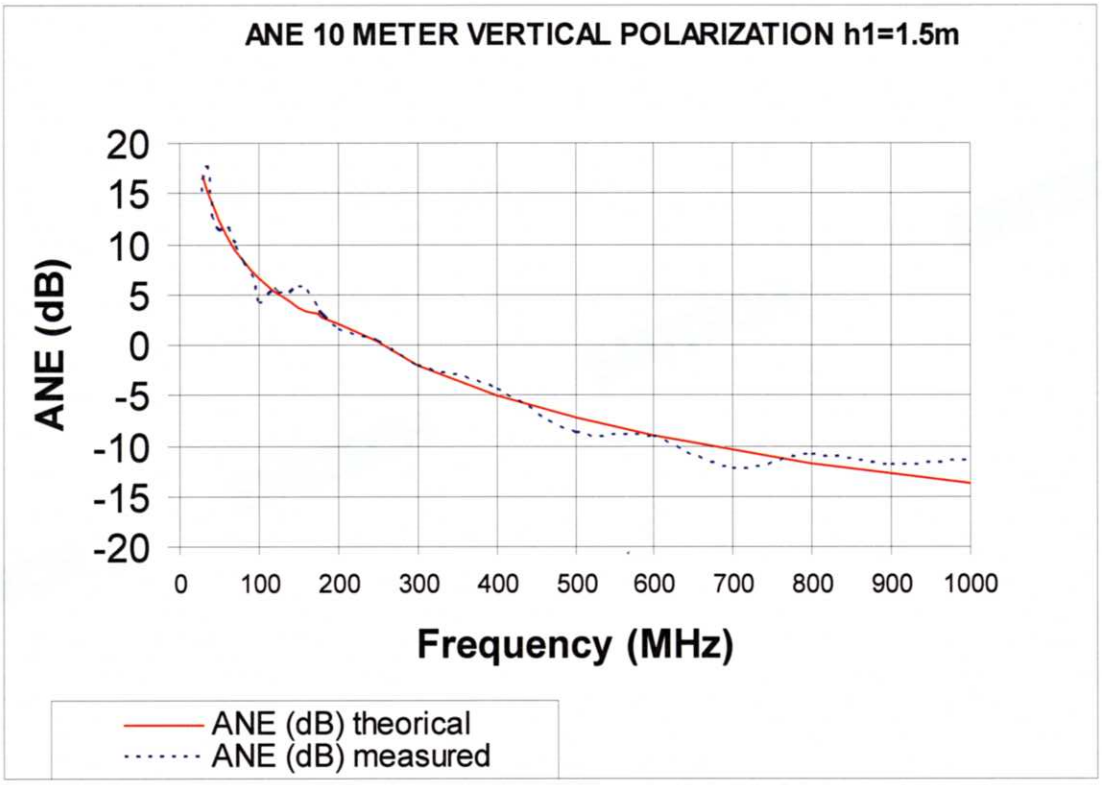
Table 4-6: 10 Meter distance - Site Attenuation -Vertical Polarisation, h_1 = 1.5 m

Date : 11th and 12th January 2005
Operator: G. LAUNAY – L. PERSIDE
Test tools:

ESVP receiver	N°EMITECH	1/02/12/045
Biconical Antenna schwarzbeck 30/300 MHz	N°EMITECH	3/24/18/051
Biconical Antenna schwarzbeck VHBA 9123	N°EMITECH	3/24/18/195
Log periodic Antenna schwarzbeck UHALP 9108	N°EMITECH	3/24/18/224
Log periodic Antenna Electro-Metrics 3146	N°EMITECH	3/24/18/581

The emission antenna is placed in the center of the turntable. Height : 1.5 meter
The receiving antenna is raised from 1 to 4 meters

MEASUREMENT DISTANCE 10m / h1=1.5m							
VERTICAL							
Frequency MHz	Aftx dB(1/m)	Afrx dB(1/m)	V Direct dBµV	Site Theorical dB	V Site Measured dB	SITE EMITECH dB	deviat Vertical dB
30	12,61	19,01	1,3	16,8	48,2	15,28	-1,52
35	10,78	17,08	1,5	15,5	47,1	17,74	2,24
40	9,86	15,26	1,6	14,4	39,5	12,78	-1,62
45	8,97	13,67	1,6	13,4	36	11,76	-1,64
50	8,73	12,03	1,8	12,5	33,9	11,34	-1,16
60	8,62	8,32	2,0	10,9	30,6	11,66	0,76
70	8,74	6,94	2,1	9,6	27,7	9,92	0,32
80	8,97	6,57	2,2	8,5	26	8,26	-0,24
90	9,58	8,58	2,4	7,6	27,6	7,04	-0,56
100	10,69	10,89	2,5	6,8	28,3	4,22	-2,58
120	10,53	12,33	2,8	5,4	31,2	5,54	0,14
125	10,51	12,81	2,8	5,1	31,2	5,08	-0,02
140	11,40	14,10	3,1	4,3	33,7	5,10	0,80
150	12,10	14,60	3,2	3,8	35,6	5,70	1,90
160	12,78	15,28	3,3	3,4	37	5,64	2,24
175	13,72	15,42	3,5	3,1	36,1	3,46	0,36
180	13,94	15,24	3,5	2,7	35,6	2,91	0,21
200	15,45	16,25	3,7	2,1	37	1,60	-0,50
250	17,67	18,27	4,3	0,3	40,7	0,46	0,16
300	21,01	20,51	4,7	-1,9	44,2	-2,02	-0,12
400	16,36	15,76	5,7	-5	33,4	-4,42	0,58
500	17,83	19,23	6,6	-7,2	35	-8,66	-1,46
600	19,77	19,67	7,3	-8,9	37,7	-9,04	-0,14
700	21,29	21,29	8,0	-10,3	38,4	-12,18	-1,88
800	20,97	21,37	8,8	-11,6	40,3	-10,84	0,76
900	21,73	22,53	9,4	-12,6	41,8	-11,86	0,74
1000	22,09	23,19	10,2	-13,6	43,9	-11,58	2,02


ANE 10 METER VERTICAL POLARIZATION h1=1.5m
ANE (dB)
20
15
10
5
0
-5
-10
-15
-20
0
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
ANE (dB) theorical
ANE (dB) measured