

**Test Report
EMC Testing of
Identifier V1 (Antenova)
for
SRT Marine Technology Limited**

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This test report relates only to the unit(s) tested



1574
Testing

A BIS
designated
Notified Body
No 1892
Consultancy



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CONTENTS

1	Introduction	2
2	Test Specification.....	3
2.1	Equipment under Test and Environment.....	3
2.2	Relevant Standards	3
3	Test Results	6
3.1	Radiated Emissions (150kHz to 2000MHz)	6
3.2	Immunity to Electrostatic Discharge	10
3.3	Radiated Immunity (80MHz-2000MHz)	11
4	Summary	13
4.1	Emissions	13
4.2	Immunity	13
4.3	Compliance Statement	13
5	Appendices	14
5.1	Appendix 1. Radiated Emission Test Method (30MHz to 1000MHz)	14
5.2	Appendix 2. Immunity to Electrostatic Discharge Test Method	15
5.3	Appendix 3. Radiated Immunity Test Method	16
5.4	Appendix 4. ESD Test Point Locations	17
5.5	Appendix 5. Radiated Emission Test Results	19
5.6	Appendix 6. EUT Test Configurations	34
5.7	Appendix 7. Customers Test Equipment Used	37
5.8	Appendix 8. Modification States	38
5.9	Appendix 9. Test Report History.....	39
5.10	Appendix 10. Documentation	40

1 Introduction

Name and address of laboratory: York EMC Services (2007) Ltd
46 Waverley Road
Beeches Industrial Estate
Yate
Bristol
BS37 5QT
UKAS testing laboratory N° 1574

Name and address of customer: SRT Marine Technology Limited
Wireless House
Midsomer Norton
Bath
BA3 4BS

The test results contained in this test report relate only to the unit(s) tested.

Equipment under test	Identifier V1 (Antenova)
Manufacturer	SRT Marine Technology Limited
Product name	Identifier V1 (Antenova)
Sample number	1392B & 1393B
Model number	Not known
Serial number	#11, #16
Circuit revision	REV 1
No. tested of each item	One
Customer supplied test plan ref.	None
Date of receipt of EUT	18/01/2012
Method of receipt	Brought by customer
Date(s) of test(s)	18/01/2012 and 20/01/2012
Date(s) when EUT was out of laboratory's control	None
Method of disposal	Returned to customer
Personnel witnessing tests	Testing was witnessed by the customer
Any other relevant information	None

2 Test Specification

2.1 Equipment under Test and Environment

The equipment under test is the Identifier V1 (Antenova) and is maritime navigation and radiocommunication equipment.

2.2 Relevant Standards

2.2.1 Emissions

Product Specific Standard	Basic Standard	Class/Limit	Test
EN60945:2002	Conducted emissions ac power port EN60945:2002	Clause 9.2	Not applicable
	Radiated emissions EN60945:2002	Clause 9.3 Table 5	1 & 2

Note 1: Tests marked "Not applicable" were not requested by the customer or Not applicable to the EUT.

Note 2: Testing to EN60945:2002 is not UKAS accredited.

2.2.2 Immunity

Product Specific Standard	Basic Standard	Level	Test
EN60945:2002	EN60945 clause 10.3 Conducted RF Immunity EN 61000-4-6: 2009	3Vrms 150kHz to 80 MHz 10Vrms spot frequencies 2MHz, 3MHz, 4MHz, 6.2MHz, 8.2MHz, 12.6MHz, 16.5MHz, 18.8MHz, 22MHz, 25MHz 80% AM modulation 400Hz	Not applicable
	EN60945 clause 10.4 Radiated RF Immunity EN61000-4-3:2006 +A1 +A2	10V/m 80MHz-2000MHz 80% 400Hz AM Level 3	3 & 4
	EN60945 clause 10.5 Electrical Fast Transients / Burst EN61000-4-4:2004 +A1	±2kV ac power ±1kV signal ports	Not applicable
	EN60945 clause 10.6 Surge EN61000-4-5:2006	±0.5kV ac power, line to line ±1kV ac power, line to earth	Not applicable
	EN60945 clause 10.7 Power supply variations EN61000-4-11:2004	Voltage +20% for 1.5 sec Frequency +10% superimposed for 5 seconds Voltage -20% for 1.5 sec Frequency -10% superimposed for 5 seconds Rise and decay times 0.2 seconds	Not applicable
	EN60945 clause 10.8 Power supply interruptions EN61000-4-11:2004	Break in power supply for 60 seconds	Not applicable
	EN60945 clause 10.8 Electrostatic Discharge EN 61000-4-2: 2009	+/-6kV contact +/-8kV air	5

Note 1: Tests marked “Not applicable” were not requested by the customer or Not applicable to the EUT.

Note 2: Testing to EN60945:2002 is not UKAS accredited but testing to the basic immunity standards called up is UKAS accredited unless otherwise indicated

2.2.3 Performance Criteria

The following parameters were monitored during immunity testing:

Parameter	Nominal Value/State	Unacceptable change
Test Mode	Serial output monitored observing customer's PC software using terminal emulator displaying serial data Observing Red LED flashing on EUT every 5seconds	Any other change from the nominal value

3 Test Results

3.1 Radiated Emissions (150kHz to 2000MHz)

Mode of operation	Description	Mode No.
Test Mode	Holder Mode (Low power disabled)	1
Test Mode	Holder Mode (Low power disabled) RFID running	2

Test standard	Test description	Class/Limit
EN60945:2002	Radiated emissions	EN60945:2002 Clause 9.3

Results	Mode	Figure	Result Pass/Fail	Comments
	1	RE01	Pass	30-1000MHz
		RE03	Pass	1000-2000MHz
		ME01	Pass	0.15-30MHz
		ME02	Pass	0.15-30MHz
		ME03	Pass	0.15-30MHz
		ME04	Pass	0.15-30MHz
		ME05	Pass	0.15-30MHz
		ME06	Pass	0.15-30MHz
		ME07	Pass	0.15-30MHz
		ME08	Pass	0.15-30MHz

RFID Active

Results	Mode	Figure	Result Pass/Fail	Comments
	2	RE02	Pass	30-1000MHz
		RE04	Pass	1000-2000MHz
		ME09	Pass	0.15-30MHz
		ME010	Pass	0.15-30MHz
		ME011	Pass	0.15-30MHz
		ME012	Pass	0.15-30MHz

RE01 (Composite)

QP Results	Mode	Freq (MHz)	QP level (dB μ V/m)	Clears By	Antenna Height (m)	Turntable angle (degrees)	Pol'n	Result
	1	143.64	12.4	41.6	1.50	270°	V	Pass
		162.18	12.3	11.7	1.50	270°	V	Pass
		166.80	11.6	42.4	1.50	360°	V	Pass
		460.56	20.1	33.9	1.50	360°	H	Pass
		493.92	20.8	33.2	1.50	360°	H	Pass
		599.40	21.8	32.2	1.50	360°	H	Pass

Note: Peak values were recorded between 30-1000MHz, but were no longer present when subsequently testing Quasi-Peak levels.

RE02 (RFID active Mode 2, Composite)

QP Results	Mode	Freq (MHz)	QP level (dB μ V/m)	Clears By	Antenna Height (m)	Turntable angle (degrees)	Pol'n	Result
	2	352.62	35.4	18.6	1.40	30	V	Pass
		393.30	33.7	20.3	1.44	180	V	Pass
		406.80	35.8	18.2	1.30	25	V	Pass
		488.22	37.4	16.6	1.10	25	V	Pass
		949.20	38.8	15.2	2.00	25	V	Pass
		976.32	38.2	15.8	2.10	5	V	Pass

RE03 (Composite)

QP Results	Mode	Freq (MHz)	QP level (dB μ V/m)	Comments
	1	1000-2000	-	No peaks within 20dB of the limit

RE04 (RFID active Mode 2, Composite)

Frequency GHz	Peak dB μ V/m	Quasi Peak dB μ V/m	QP Limit dB μ V/m	Angle Degrees	Height	Polarization	Status
1.031	38.55	31.16	54	340	1.5 m	Vertical	Pass

ME01 (0° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dB μ V/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME02 (90° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dB μ V/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME03 (180° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME04 (270° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME05 (0° Perpendicular)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME06 (90° Perpendicular)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME07 (180° Perpendicular)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME08 (270° Perpendicular)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME09 (RFID active Mode 2, 0° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME10 (RFID active Mode 2, 90° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME11 (RFID active Mode 2, 180° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

ME12 (RFID active Mode 2, 270° Parallel)

QP Results	Mode	Freq (MHz)	QP level (dBµV/m)	Comments
	1	0.15-30	-	No peaks within 20dB of the limit,

Note: Testing of radiated emissions to EN60945:2002 is not UKAS accredited.

Modifications	Required for this test	Modification state
	None	0

3.2 Immunity to Electrostatic Discharge

Mode of operation	Description	Mode No.
Test Mode	Holder Mode (Low power disabled)	1
Test Mode	Holder Mode (Low power disabled) RFID running	2

Test standard	Test description	Number of discharges	Level
EN61000-4-2:2009	ESD	10 air, 15 contact and 25 (H1 only) at each point per polarity	±8kV air, ±6kV contact

Climatic conditions	Temperature (°C)	Humidity (%)	Pressure (kPa)
	21	37	101.1

Results	Mode	Discharge Points	Result Pass/Fail	Observed effects & deviations from standard
	1	H1	Pass	None
		H2	Pass	None
		H3	Pass	None
		H4	Pass	None
		V1	Pass	None
		V2	Pass	None
		V3	Pass	None
		V4	Pass	None
		A1	Pass	None
		A2	Pass	None
		A3	Pass	None
		A4	Pass	None
		C1	Pass	None

Note 1: The locations of the test points are contained in Appendix 4

Note 2: Tests at lower severity levels have been performed.

Note 3: The EUT was in command shell mode whilst ESD testing was carried out, to enable observation of any EUT reset.

Modifications	Required for this test	Modification state
	None	0

3.3 Radiated Immunity (80MHz-2000MHz)

Mode of operation	Description	Mode No.
Test Mode	Holder Mode (Low power disabled)	1
Test Mode	Holder Mode (Low power disabled) RFID running	2

Test standard	Description	Dwell time (s)	Test distance (m)	Level
EN 61000-4-3:2006 +A1:2007 +A2:2010	Radiated immunity	80-1000MHz 3 seconds 1000-2000MHz 9 seconds	3	10V/m 80MHz-2000MHz 80% 400Hz AM Level 3

Climatic conditions	Temperature (°C)	Humidity (%)	Pressure (kPa)
	24	33	101.2

80-1000MHz

Results	Mode	EUT face	Pol'n	Figure	Result Pass/Fail	Observed effects & deviations from standard
	1	0°	V	Visual	Pass	None
		0°	H	Visual	Pass	None
		90°	V	Visual	Pass	None
		90°	H	Visual	Pass	None
		180°	V	Visual	Pass	None
		180°	H	Visual	Pass	None
		270°	V	Visual	Pass	None
		270°	H	Visual	Pass	None

1000-2000MHz

Results	Mode	EUT face	Pol'n	Figure	Result Pass/Fail	Observed effects & deviations from standard
	1	0°	V	Visual	Pass	None
		0°	H	Visual	Pass	None
		90°	V	Visual	Pass	None
		90°	H	Visual	Pass	None
		180°	V	Visual	Pass	None
		180°	H	Visual	Pass	None
		270°	V	Visual	Pass	None
		270°	H	Visual	Pass	None

Note 1: The front face of the EUT is deemed to be 0°, which is then turned in a clockwise direction through 270°.

Modifications	Required for this test	Modification state
	None	0

4 Summary

4.1 Emissions

Product Specific Standard	EN60945:2002	
Basic Standard	Class/Limit	Result
Radiated emissions EN60945:2002	Clause 9.3 Table 5	Pass

4.2 Immunity

Product Specific Standard	EN60945: 2002		
Basic Standard	Level	Criterion	Result
EN60945 clause 10.4 Radiated RF Immunity EN61000-4-3:2006 +A1 +A2	10V/m 80MHz-2000MHz 80% 400Hz AM Level 3	A (Clause 10.1)	Pass
EN60945 clause 10.8 Electrostatic Discharge EN 61000-4-2: 2009	+/-6kV contact +/-8kV air	B (Clause 10.1)	Pass

Note: Testing to EN60945:2002 is not UKAS accredited.

4.3 Compliance Statement

The Identifier V1 (Antenova), as tested, was shown to meet the requirements of the standards listed in 4.1 and 4.2 of this report.

5 Appendices

5.1 Appendix 1. Radiated Emission Test Method (30MHz to 1000MHz)

5.1.1 Test Information

Standards	EN60945:2002 Clause 9.3
YES Test Method	BEP23
Measurement uncertainty	5.12dB as defined by EN55016-4-2:2004

Test Equipment Used

Instrument	YES Serial No.
Rainford Semi Anechoic Shielded Room	LAB 1
60A Mains Filter DS23335C	(Fixed)
ETS Lindgren 6512 Loop Antenna, 0.15-30MHz	B0921
Chase Bilog Antenna CBL6111A, 30MHz - 1GHz	B0544
Rohde & Schwarz HL-050 Log Periodic Antenna, 1-2GHz	B0936
Maturo Antenna Mast	B0934
Clark Compressor (Mast)	B0953
Rohde & Schwarz ESVS10 Measuring Receiver	78036
Rohde & Schwarz ESHS10 Measuring Receiver	B0916
Rohde & Schwarz ESU Measuring Receiver	B0984
CNE V Emission Source	B0855

Note: Specific set-ups for the EUT are shown in EUT test configurations section of this report (where applicable).

5.2 Appendix 2. Immunity to Electrostatic Discharge Test Method

5.2.1 Test Information

Standard	EN61000-4-2:2009 EN60945:2002 Clause 10.8
YES Test Method	BEP40
Measurement uncertainty	The uncertainties associated with the applied pulse characteristics, calculated at a probability confidence of 95%, were all within the tolerance limits given in the appropriate standard.

Test Equipment Used

Instrument	YES Serial No.
Schaffner NSG 435 Simulator	B0927
Schaffner NSG 435 Air discharge tip	B0927
Schaffner NSG 435 contact discharge tip	B0927
Vertical Coupling Plane	B0809
Horizontal Coupling Plane	B0808
ESD go/no go Verification Jig	B0899
Vaisala Temperature/Relative Humidity Meter HM34C	B0854
Oregon Scientific Environmental Monitor (Pressure)	B0549

Note: Specific set-ups for the EUT are shown in EUT test configurations section of this report (where applicable).

5.3 Appendix 3. Radiated Immunity Test Method

5.3.1 Test Information

Standard	EN61000-4-3:2006+A1+A2 EN60945:2002 Clause 9.3
YES Test Method	BEP30
Measurement Uncertainty	$\pm 1.2\text{dB}$ ($\leq 1\text{GHz}$) $\pm 1.54\text{dB}$ (1-2GHz)

Test Equipment Used

Instrument	YES Serial No.
Rainford Semi Anechoic Shielded Room C776 001A	LAB 1 / LAB 2
AR ATL 80M1G Bilog Antenna	B0983
Schaffner RF (3GHz) Amplifier	B0903
BBHA 9120A Horn Antenna	B0748
50Ohm RF Termination (3GHz)	B0887
AR DC7144A Insertion Unit (3GHz)	B0832 / B0938
Amplifier Research RF Amplifier 150W1000	B0826
Rohde & Schwarz RF Generator SMC100A	B0939
Rohde & Schwarz Power Meter NRVD	B0929
Rohde & Schwarz Power Sensor NRV-Z5	B0930
RS 50ohm RF Termination (1GHz)	B0886 / B0902
Amplifier Research Insertion Unit DC6180A	B0831 / B0937
Amplifier Research FL7000 Laser Probe System	B0828
Alien Camera Monitor System	B1284
Vaisala Temperature/Relative Humidity Meter HM34C	B0854
Oregon Scientific Environmental Monitor (Pressure)	B0549

Note: Specific set-ups for the EUT are shown in EUT test configurations section of this report (where applicable).

5.4 Appendix 4. ESD Test Point Locations



Figure 5.4.1 ESD test point locations

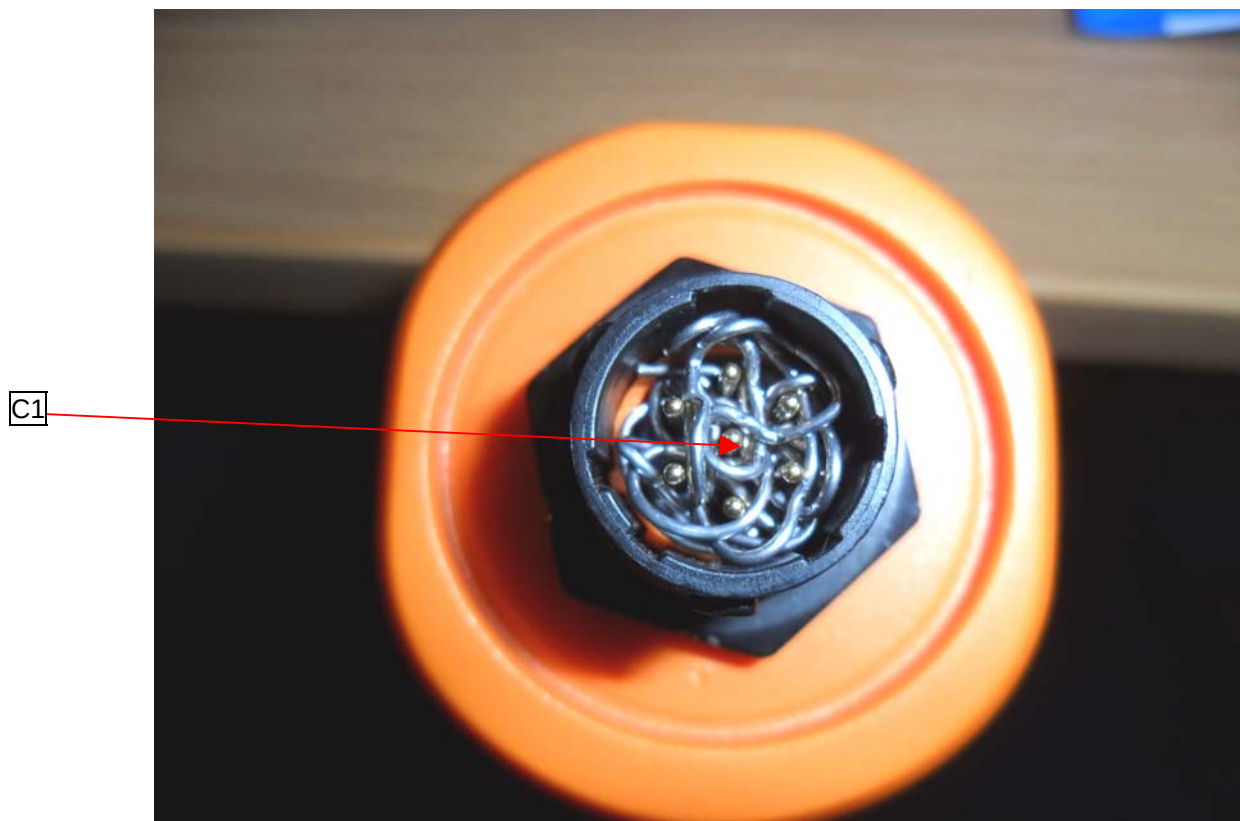


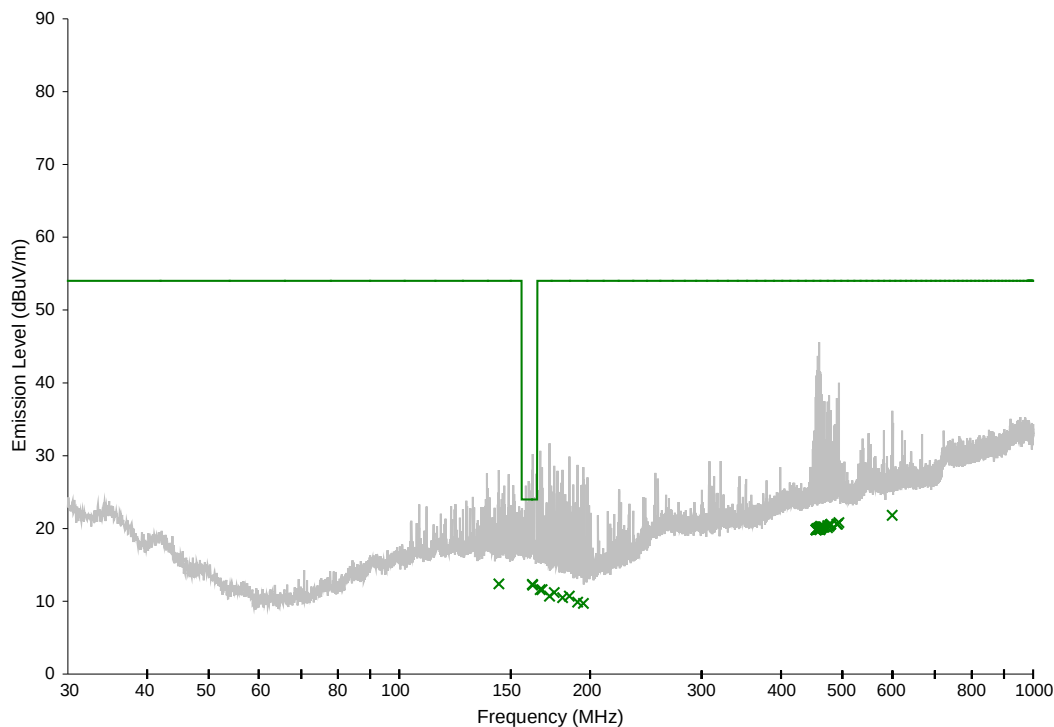
Figure 5.4.2 ESD test point locations

Discharge	Discharge Location	Discharge Type
V1-V4	Vertical coupling plane	Contact
H1-H4	Horizontal coupling plane	Contact
A1	Top case	Air
A2	SOS Button	Air
A3	LED	Air
A4	Bottom case in-line with SOS button	Air
C1	All connector pins shorted out	Contact

5.5 Appendix 5. Radiated Emission Test Results

Identifier V1 (antenova) Sample 11

EN 60945:2002 Radiated Emissions
Quasi Peak (X) at 3 metres (peak levels shown greyed)



<u>MHz</u>	<u>dBuV/m</u>	<u>MHz</u>	<u>dBuV/m</u>	<u>MHz</u>	<u>dBuV/m</u>
143.64	12.4	456.48	19.9	468.48	20.2
162.18	12.3	456.84	20.0	473.94	20.1
162.36	12.2	457.62	19.9	474.24	20.4
166.80	11.6	458.04	20.0	476.52	20.3
167.94	11.6	459.00	20.1	478.44	20.5
172.56	10.7	459.06	19.9	479.64	20.6
175.62	11.2	459.78	20.0	490.14	20.6
180.96	10.5	460.56	20.1	491.52	20.6
185.52	10.7	460.68	20.1	493.92	20.8
191.10	9.9	461.10	19.8	599.40	21.8
195.12	9.7	461.34	20.0		
454.08	19.8	461.76	20.3		
454.50	19.8	462.30	20.0		
455.04	19.8	463.08	20.1		
455.46	19.8	463.92	20.2		
455.82	20.0	465.60	20.2		
456.30	19.9	466.92	20.2		

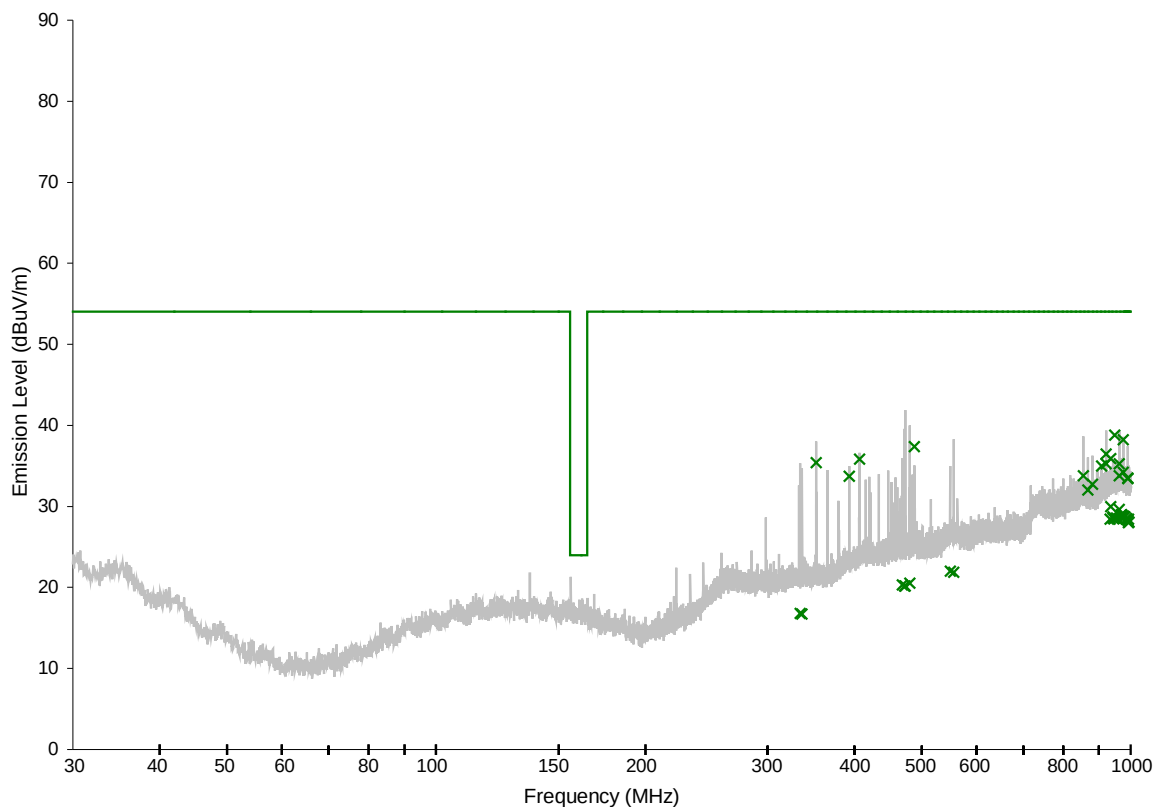
Frequencies with worst clearances and within 20dB of the limit

<u>MHz</u>	<u>dBuV/m</u>	<u>Pass</u>	<u>Clears by (dB)</u>	<u>Height (m)</u>	<u>Azimuth</u>	<u>Polarisation</u>
143.64	12.4	Pass	41.6	1.50	270°	VERTICAL
162.18	12.3	Pass	11.7	1.50	270°	VERTICAL
166.80	11.6	Pass	42.4	1.50	360°	VERTICAL
460.56	20.1	Pass	33.9	1.50	360°	HORIZONTAL
493.92	20.8	Pass	33.2	1.50	360°	HORIZONTAL
599.40	21.8	Pass	32.2	1.50	360°	HORIZONTAL

Figure 5.5.1 Radiated Emissions Results (RE01)

Identifier V1 (antenova) Sample 11, RFID active

EN 60945:2002 Radiated Emissions
Quasi Peak (X) at 3 metres (peak levels shown greyed)



<u>MHz</u>	<u>dBuV/m</u>	<u>MHz</u>	<u>dBuV/m</u>	<u>MHz</u>	<u>dBuV/m</u>
334.20	16.8	922.14	36.5	968.82	28.9
336.48	16.7	933.90	28.4	969.36	28.9
352.62	35.4	935.58	30.0	970.92	29.0
393.30	33.7	935.64	35.9	975.18	28.8
406.80	35.8	943.26	28.6	976.32	38.2
469.44	20.3	943.50	28.7	976.38	34.2
472.86	20.2	944.40	28.5	977.16	28.8
473.22	20.2	946.86	28.6	981.54	28.7
480.60	20.5	947.28	28.5	984.30	28.4
488.22	37.4	949.20	38.8	987.30	28.5
549.42	22.0	953.94	28.6	989.70	28.3
556.56	21.9	956.64	28.4	989.88	33.5
854.28	33.8	962.70	29.6	989.94	33.4
867.84	32.0	962.76	35.3	991.68	28.0
881.46	32.7	962.82	33.8	992.94	28.4
908.52	35.0	966.90	28.8	995.22	28.1
922.08	35.3	968.28	28.7		

Frequencies with worst clearances and within 20dB of the limit

<u>MHz</u>	<u>dBuV/m</u>		<u>Clears by (dB)</u>	<u>Height (m)</u>	<u>Azimuth</u>	<u>Polarisation</u>
352.62	35.4	Pass	18.6	1.40	30°	VERTICAL
393.30	33.7	Pass	20.3	1.44	180°	VERTICAL
406.80	35.8	Pass	18.2	1.30	25°	VERTICAL
488.22	37.4	Pass	16.6	1.10	25°	VERTICAL
949.20	38.8	Pass	15.2	2.00	25°	VERTICAL
976.32	38.2	Pass	15.8	2.10	05°	VERTICAL

Figure 5.5.2 Radiated Emissions Results (RE02)

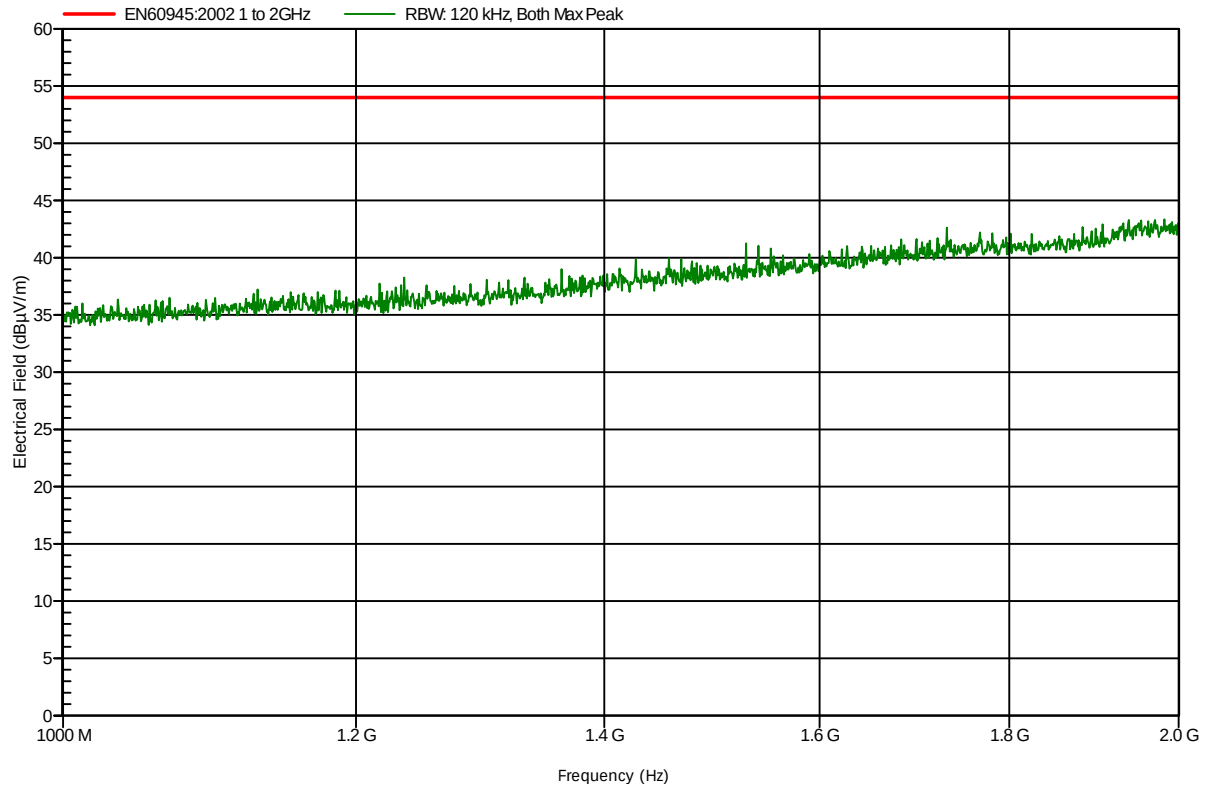
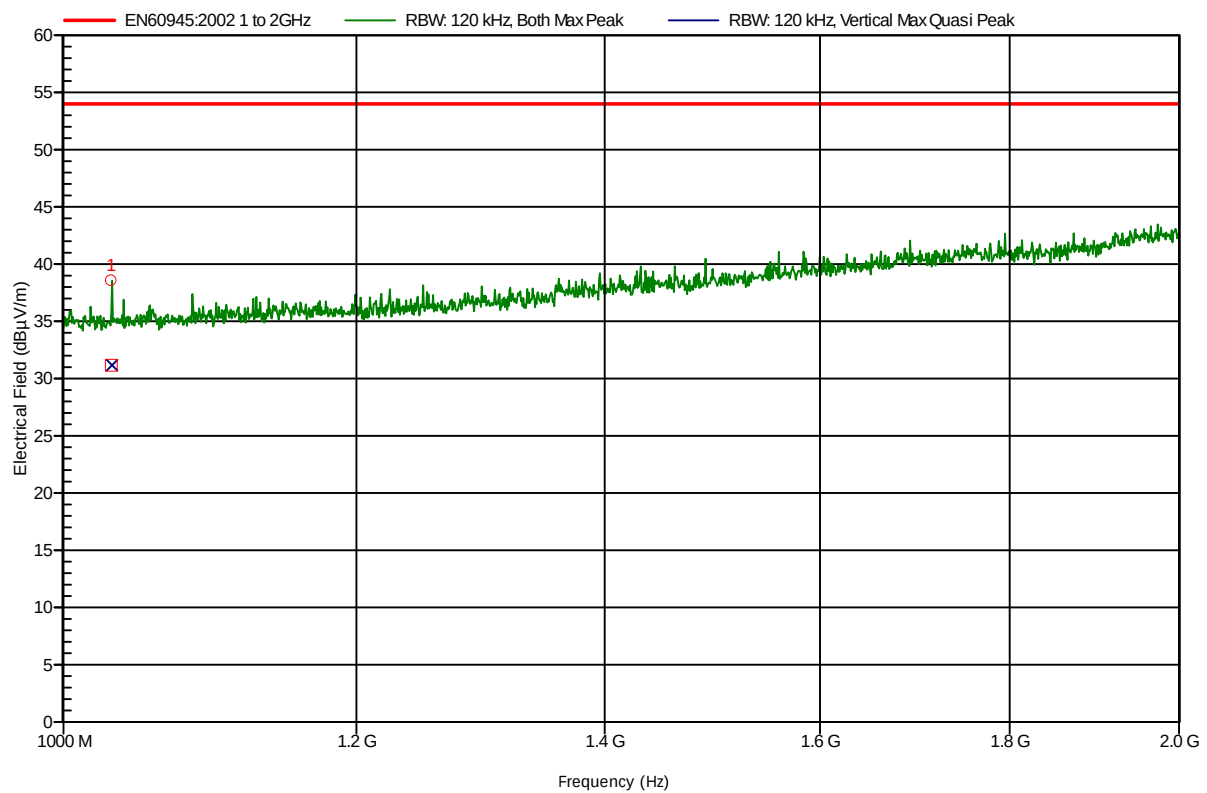


Figure 5.5.3 Radiated Emissions Results (RE03), Sample 11, Holder mode

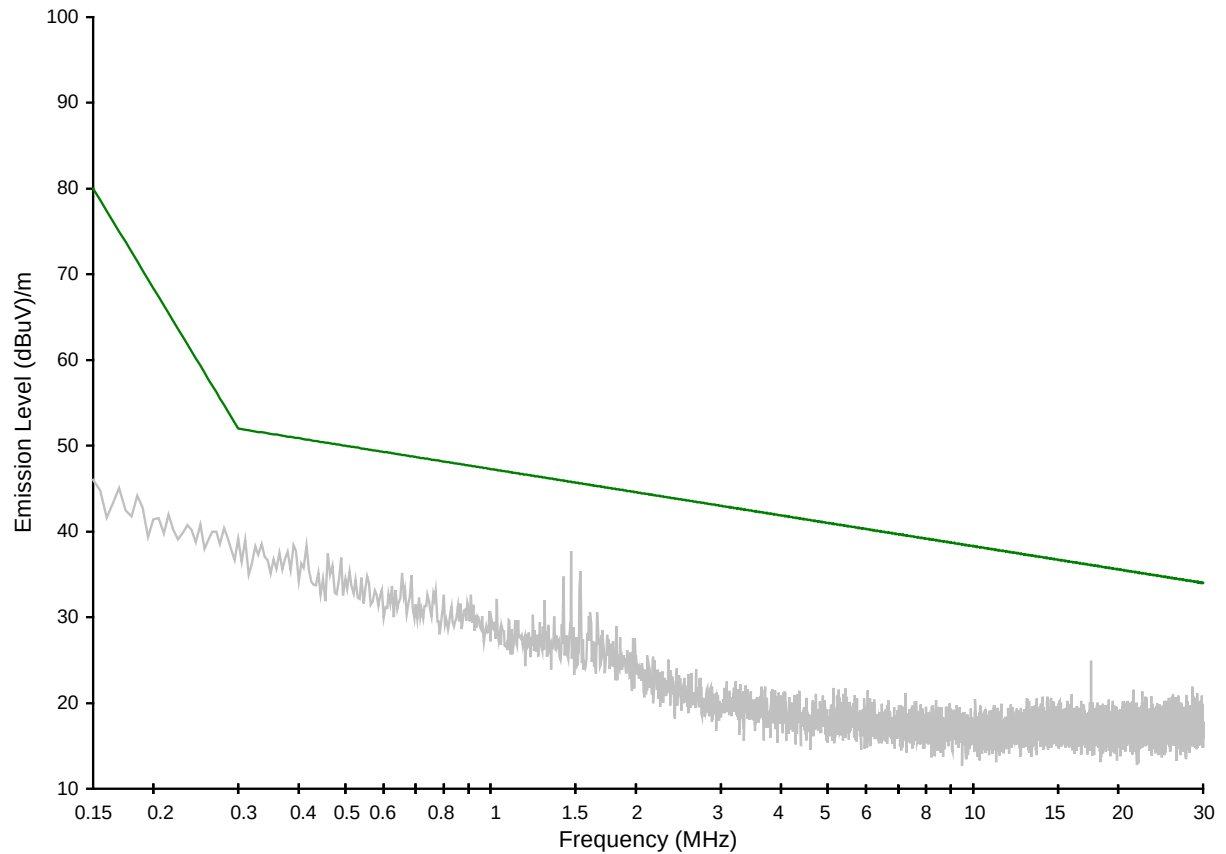


Frequency	Peak	Quasi Peak	QP Limit	Status	Angle	Height	Polarization
1.031 GHz	38.55 dBμV/m	31.16 dBμV/m	54 dBμV/m	Pass	340 Degree	1.5 m	Vertical

Figure 5.5.4 Radiated Emissions Results (RE04), Sample 11, RFID mode

Identifier V1 (antenova) Sample 11, 0° parallel

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B

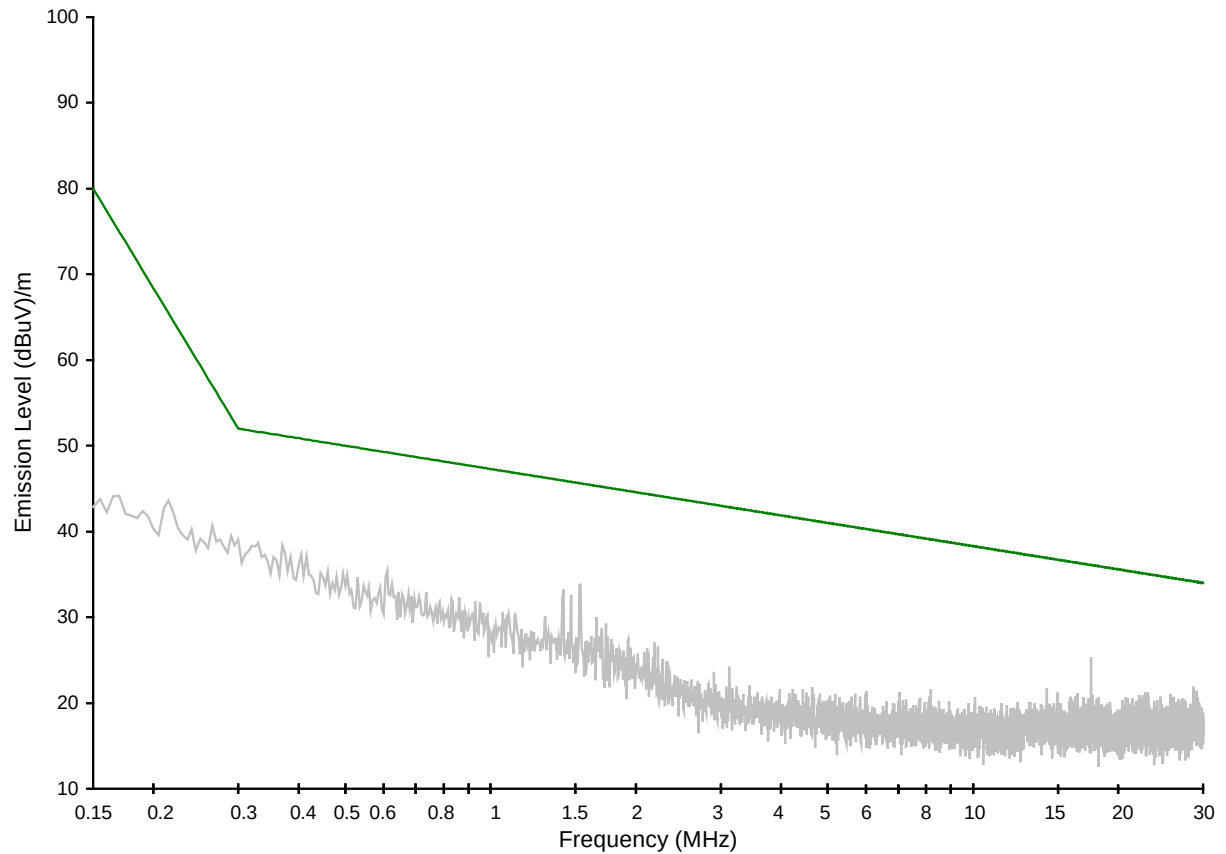


No quasi-peak results within 20dB of the limit

Figure 5.5.5 Radiated Emissions Results (ME01)

Identifier V1 (antenova) Sample 11, 90° parallel

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B



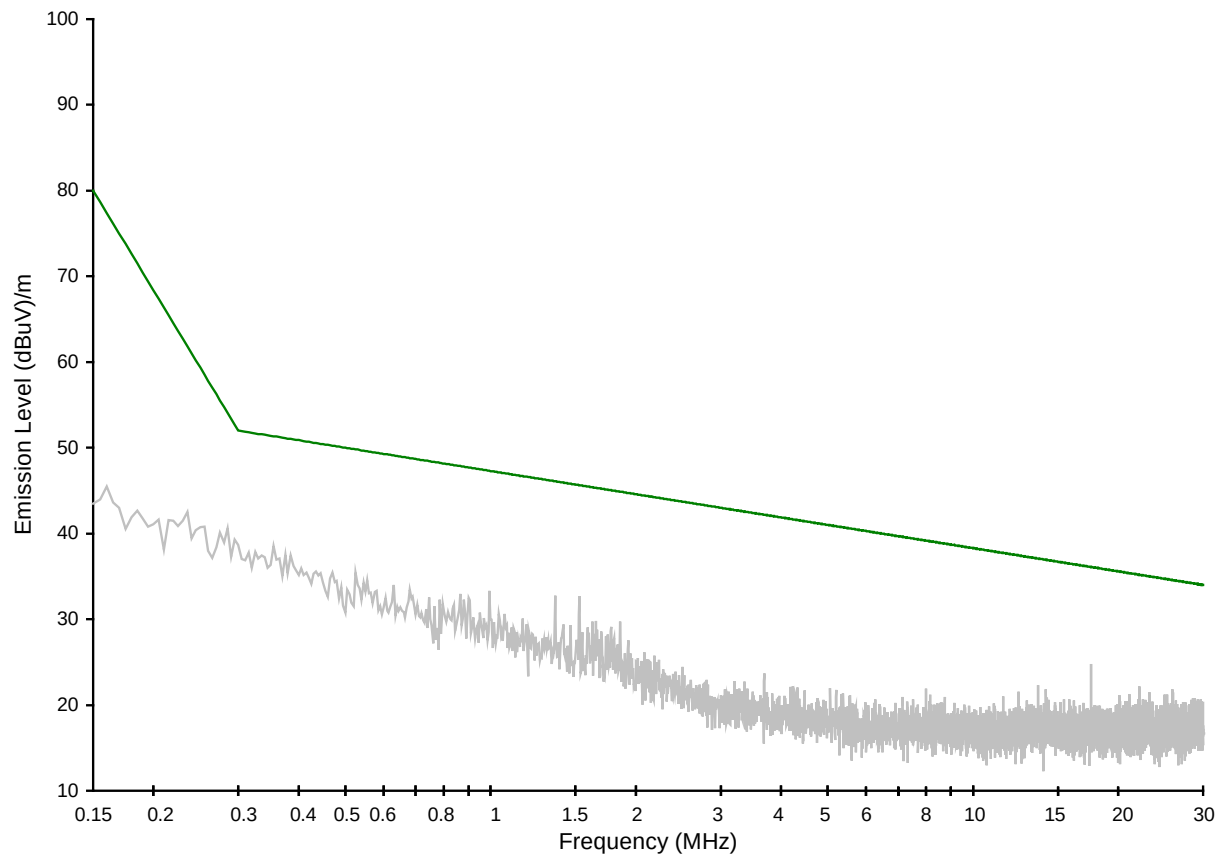
No quasi-peak results within 20dB of the limit

Figure 5.5.6 Radiated Emissions Results (ME02)

Identifier V1 (antenova) Sample 11, 180° parallel

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed

Limit = Class B

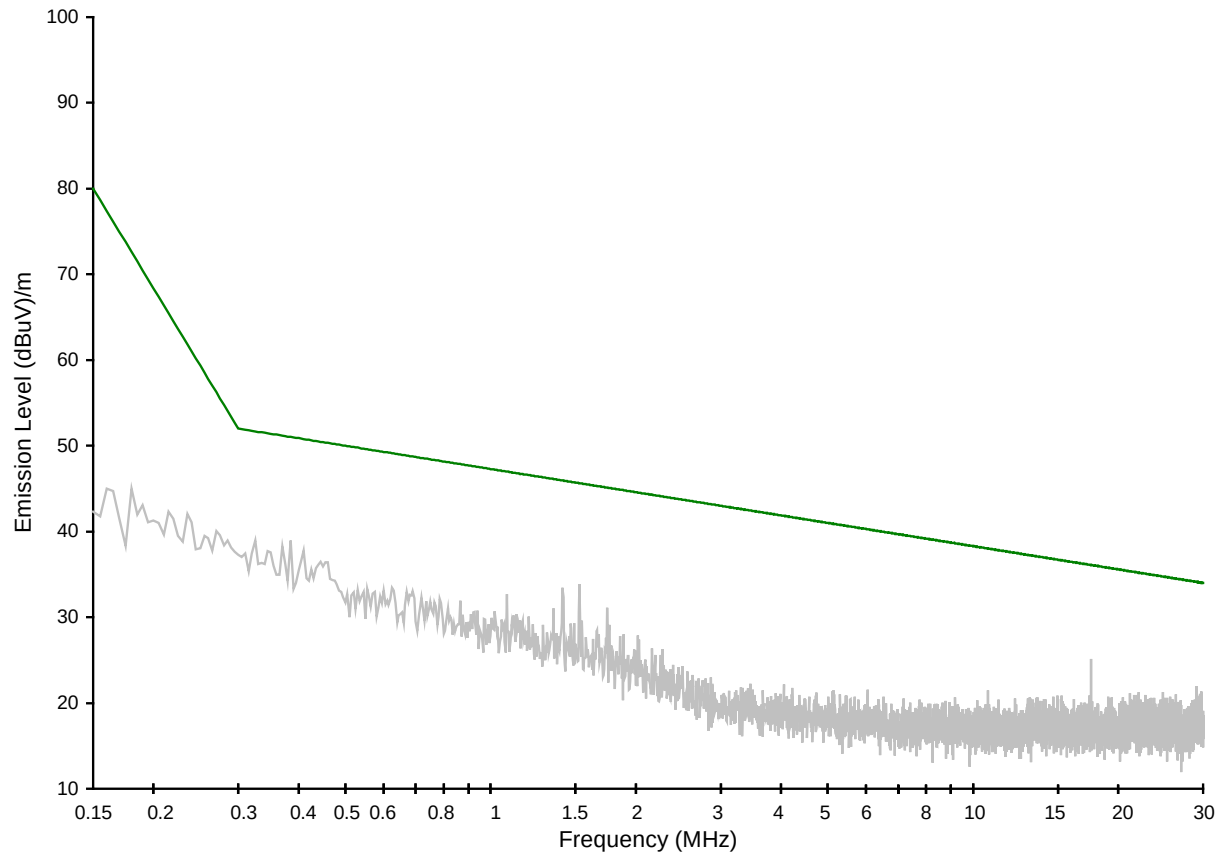


No quasi-peak results within 20dB of the limit

Figure 5.5.7 Radiated Emissions Results (ME03)

Identifier V1 (antenova) Sample 11, 270° parallel

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B

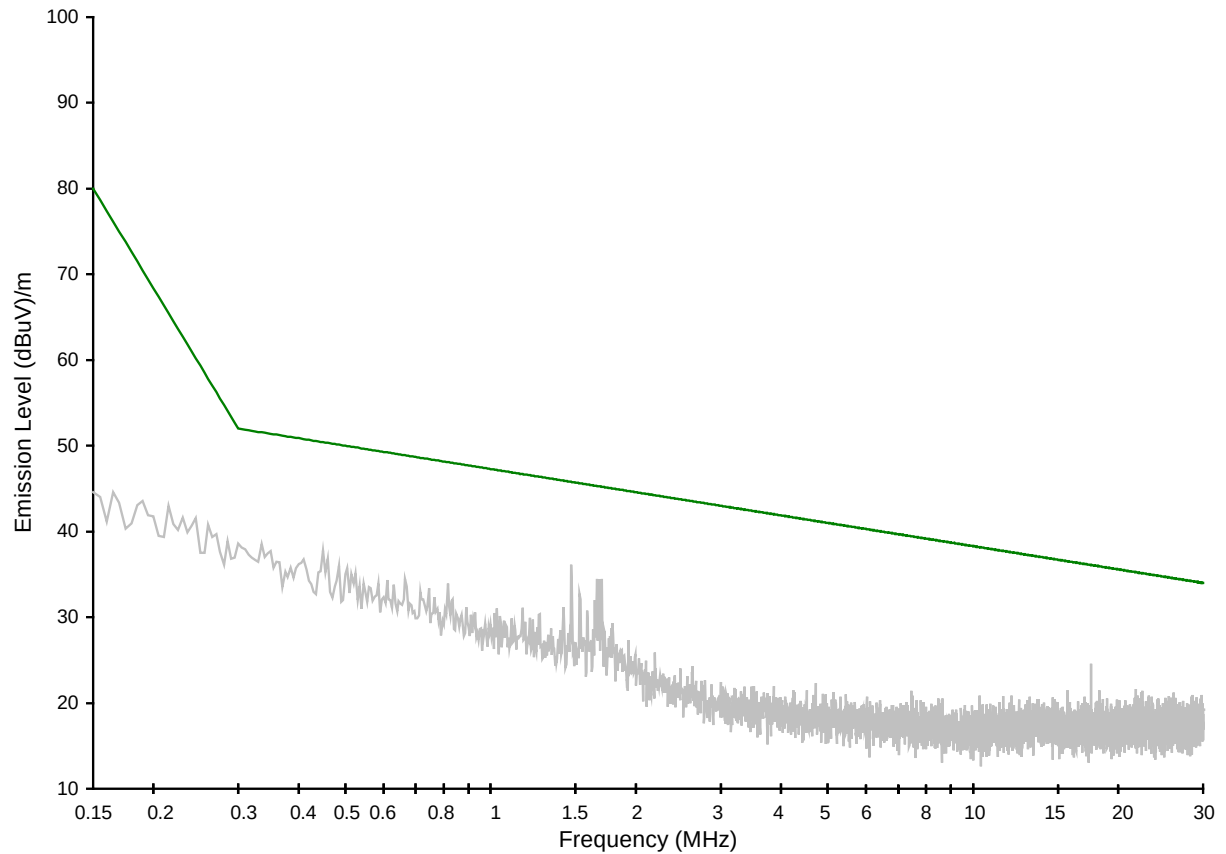


No quasi-peak results within 20dB of the limit

Figure 5.5.8 Radiated Emissions Results (ME04)

Identifier V1 (antenova) Sample 11, 0° perpendicular

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B

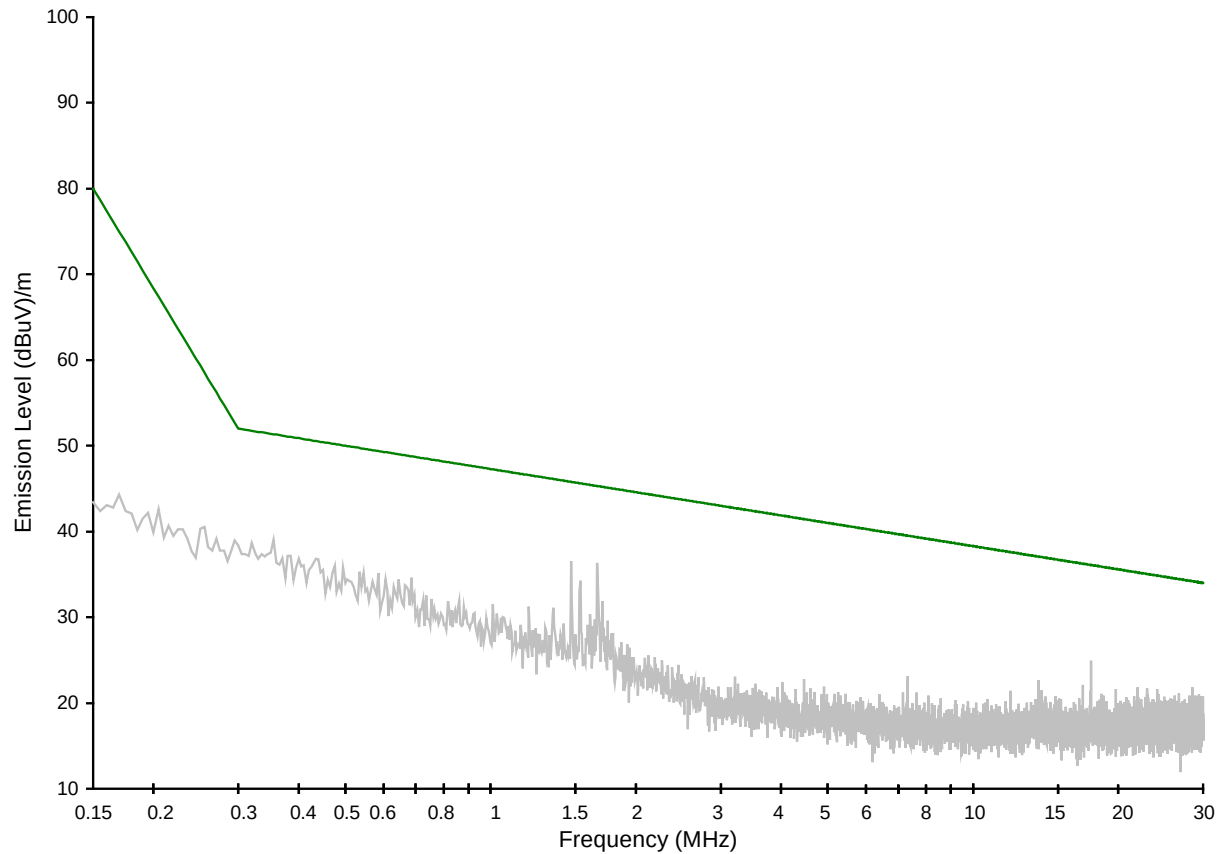


No quasi-peak results within 20dB of the limit

Figure 5.5.9 Radiated Emissions Results (ME05)

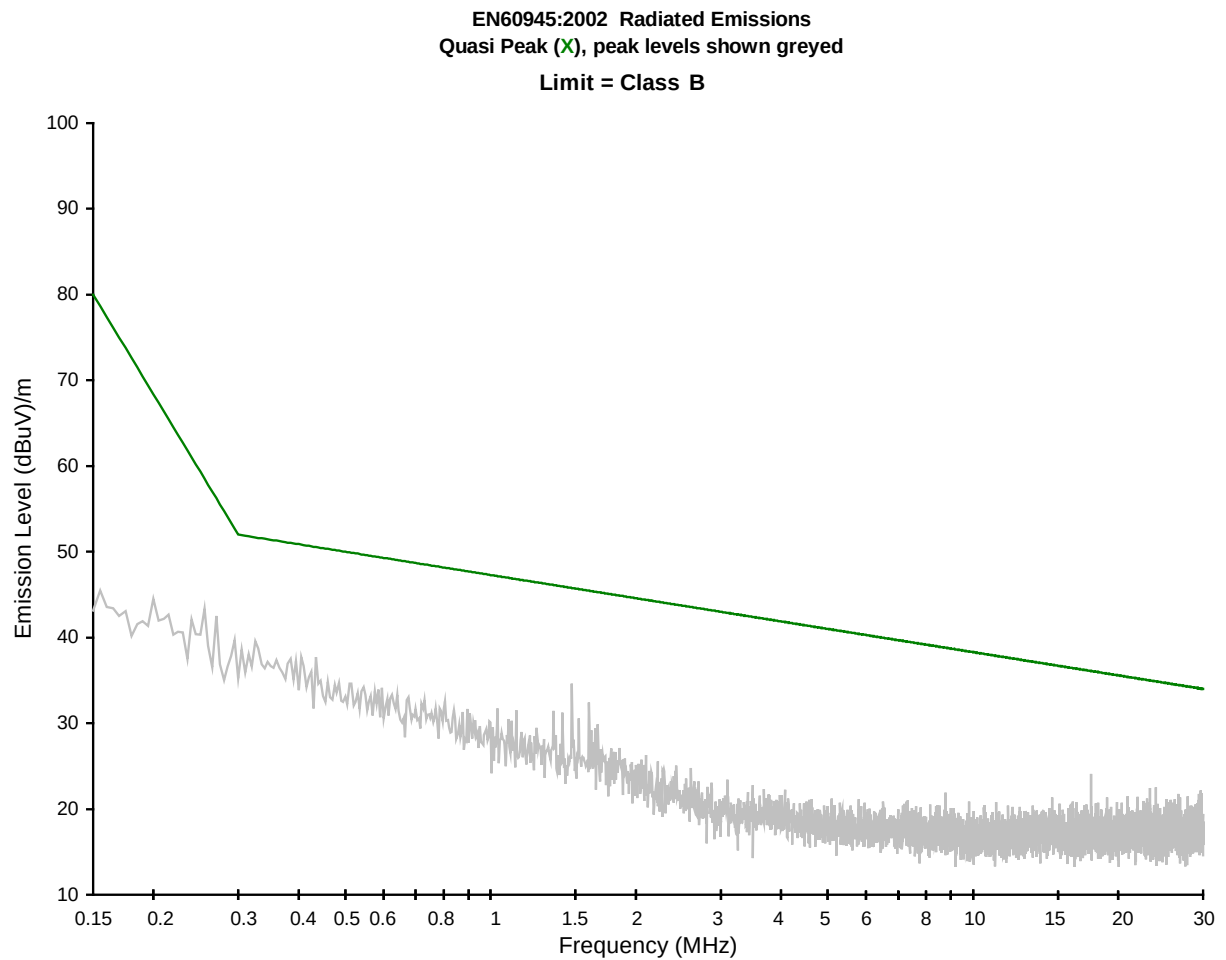
Identifier V1 (antenova) Sample 11, 90° perpendicular

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B



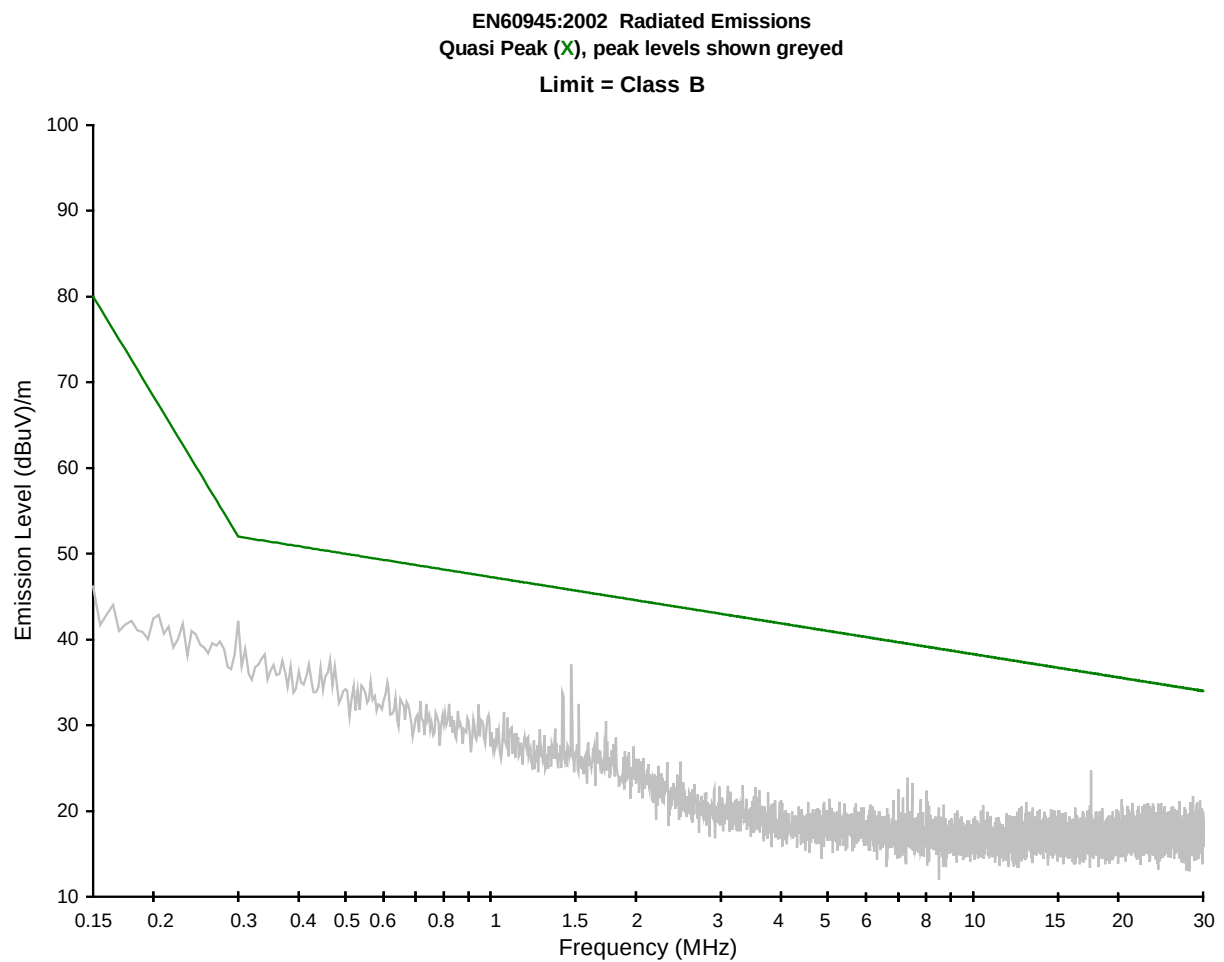
No quasi-peak results within 20dB of the limit

Figure 5.5.10 Radiated Emissions Results (ME06)

Identifier V1 (antenna) Sample 11, 180° perpendicular

No quasi-peak results within 20dB of the limit

Figure 5.5.11 Radiated Emissions Results (ME07)

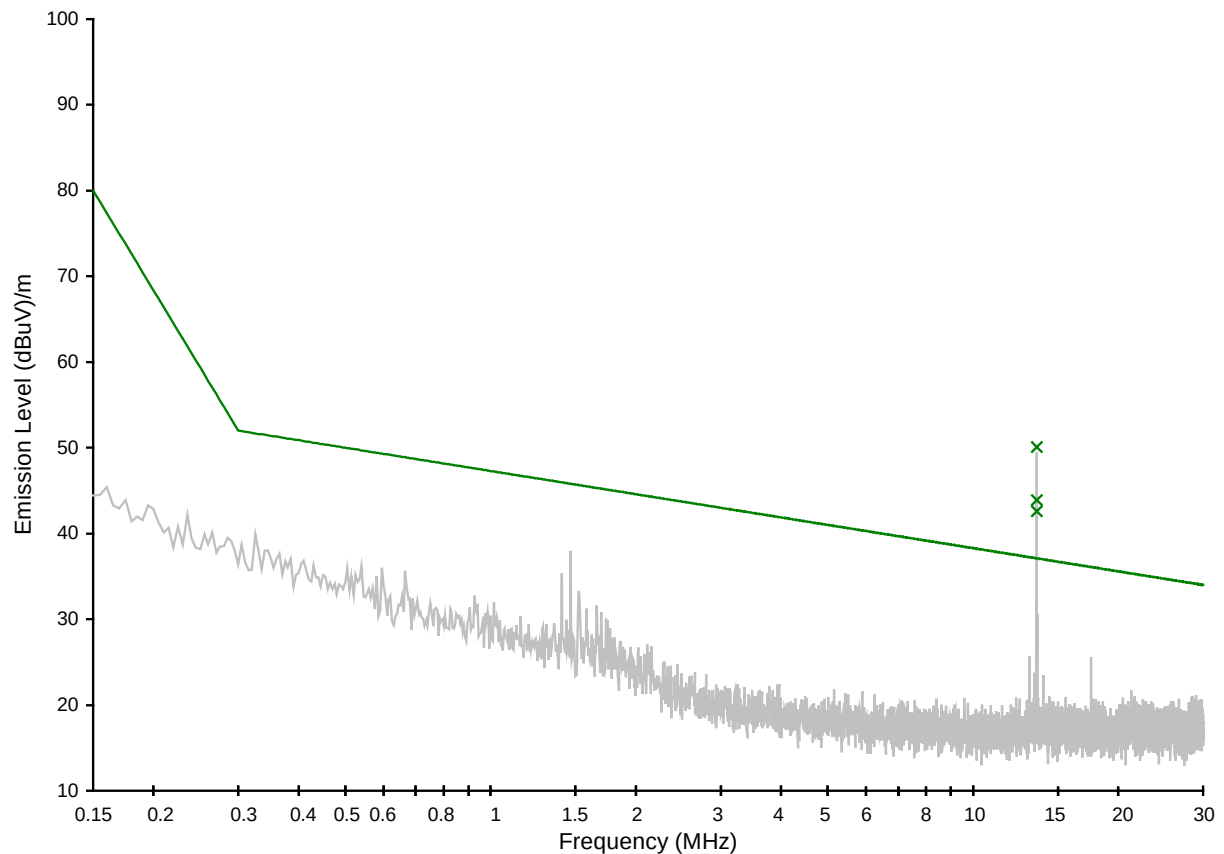
Identifier V1 (antenna) Sample 11, 270° perpendicular

No quasi-peak results within 20dB of the limit

Figure 5.5.12 Radiated Emissions Results (ME08)

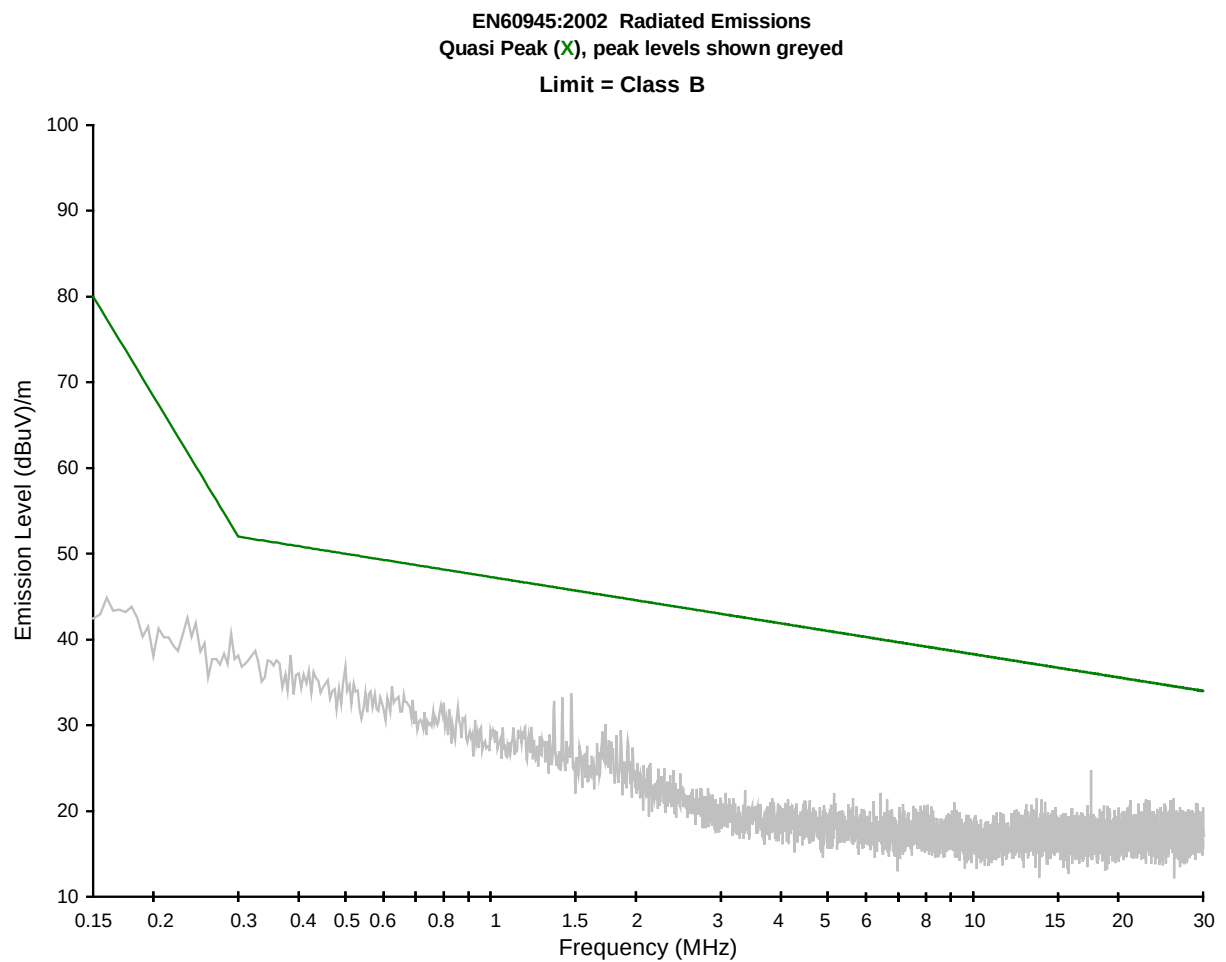
Identifier V1 (antenova) Sample 11, RFID active, 0° parallel

EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed
Limit = Class B

**Frequencies with worst clearances and within 20dB of the quasi-peak limit**

<u>MHz</u>	<u>dBuV/m</u>		<u>Clears by (dB)</u>
13.555	43.9	Fail	-6.8
13.560	50.1	Fail	-13.0
13.565	42.6	Fail	-5.5

Figure 5.5.13 Radiated Emissions Results (ME09)

Identifier V1 (antenova) Sample 11, RFID active, 90° parallel

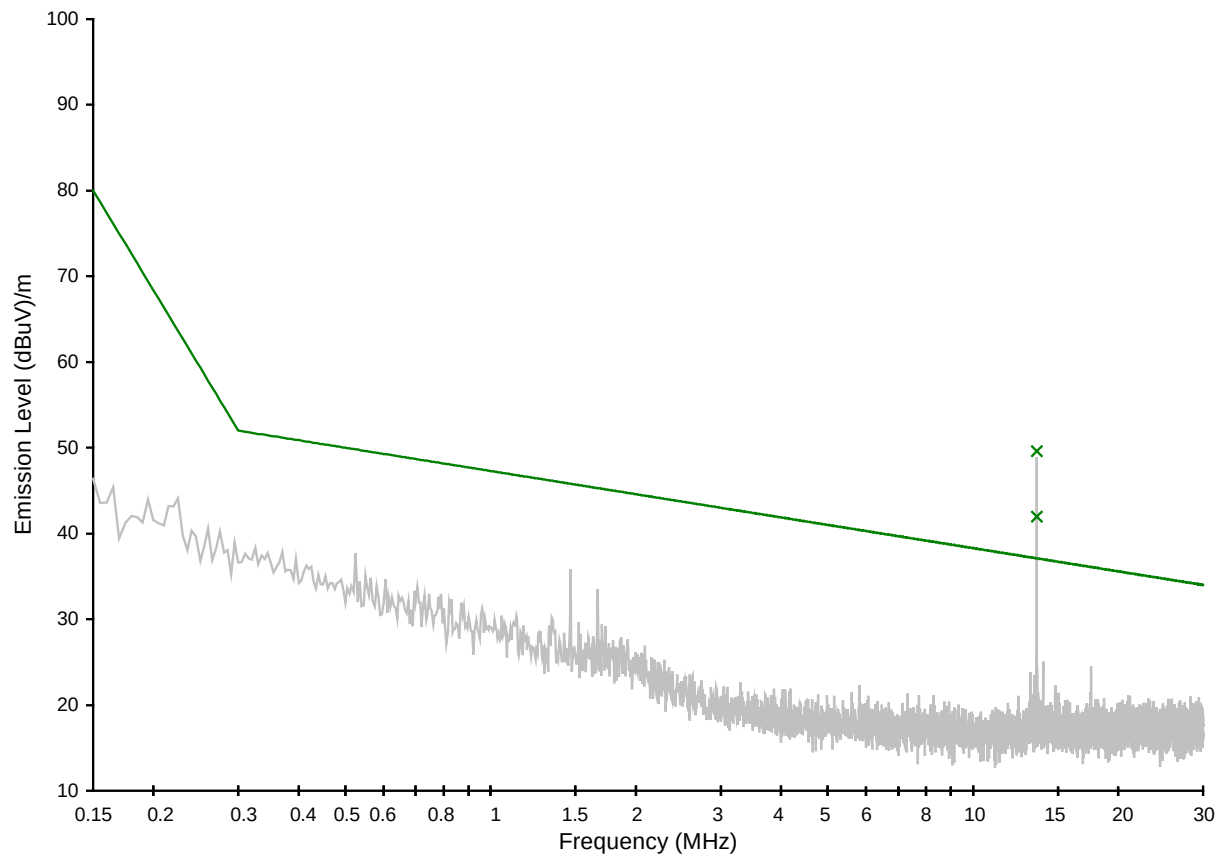
No quasi-peak results within 20dB of the limit

Figure 5.5.14 Radiated Emissions Results (ME10)

Identifier V1 (antenova) Sample 11, RFID active, 180° parallel

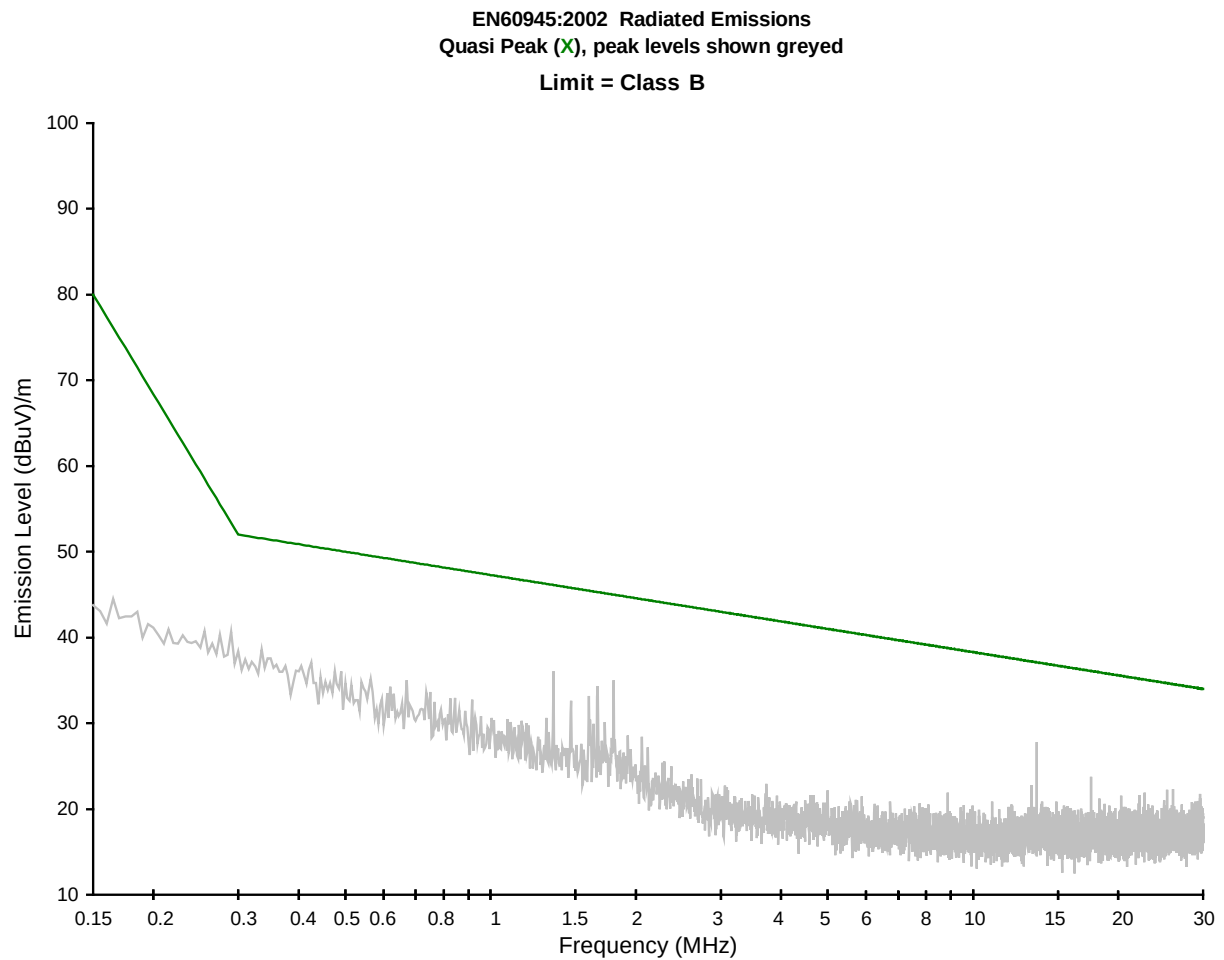
EN60945:2002 Radiated Emissions
Quasi Peak (X), peak levels shown greyed

Limit = Class B

**Frequencies with worst clearances and within 20dB of the quasi-peak limit**

<u>MHz</u>	<u>dBuV/m</u>		<u>Clears by (dB)</u>
13.560	49.6	Fail	-12.5
13.565	42.0	Fail	-4.9

Figure 5.5.15 Radiated Emissions Results (ME11)

Identifier V1 (antenova) Sample 11, RFID active, 270° parallel

No quasi-peak results within 20dB of the limit

Figure 5.5.16 Radiated Emissions Results (ME12)

5.6 Appendix 6. EUT Test Configurations



Figure 5.6.1 Radiated Emissions 0.15MHz to 30MHzTesting

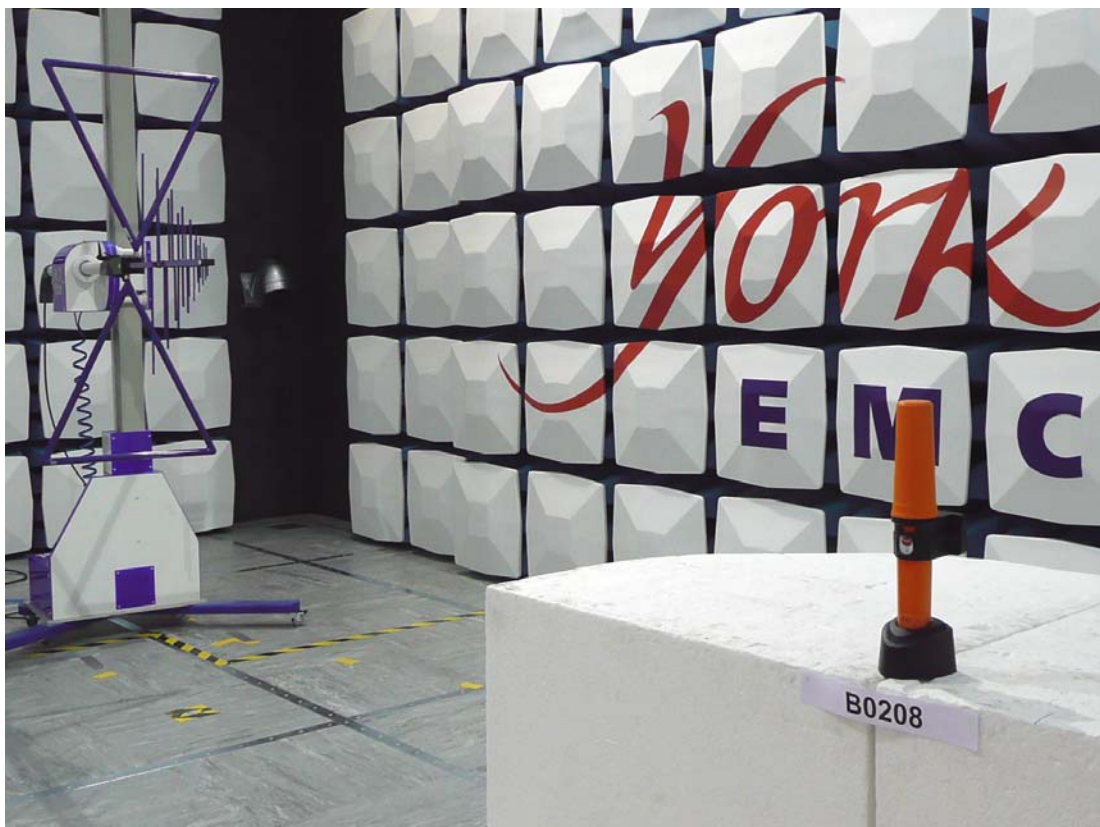


Figure 5.6.2 Radiated Emissions 30MHz to 1000MHzTesting



Figure 5.6.3 Radiated Emissions 1GHz to 2GHz Testing



Figure 5.6.4 ESD Testing – Air



Figure 5.6.5 ESD Testing – Contact



Figure 5.6.6 Radiated Immunity Testing

5.7 Appendix 7. Customers Test Equipment Used

Equipment	Serial number	Cal status
None	Laptop PC with monitoring software	Not applicable

5.8 Appendix 8. Modification States

Modification state	Modification
0	As supplied by the customer

5.9 Appendix 9. Test Report History

Issue	Modification details
1	Original issue of the test report

5.10 Appendix 10. Documentation

No documentation was provided for inclusion in this report.