PHOENIX TESTLAB

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TEST REPORT

on

IEC 61097-14 Edition 1.0: 2010-02

GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)
Part 14: AIS search and rescue transmitter (AIS-SART)- Operational and performance requirements, methods of testing and required test results

Test Report Reference: F112488E1 2nd Version

Equipment under Test:

AIS-SART Plomo-500

Serial Number: -

Applicant: Alltek Marine Electronics Corp

Manufacturer: Alltek Marine Electronics Corp

Contents: **Page**

1. IDENTIFICATION

1.1 APPLICANT

Name:	Alltek Marine Electronics Corp
Address:	7F, No.605, Ruei-Guang Rd., Neihu, Taipei
Country:	Taiwan, R.O.C.
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1.2 MANUFACTURER

Name:	Alltek Marine Electronics Corp
Address:	7F, No.605, Ruei-Guang Rd., Neihu, Taipei
Country:	Taiwan, R.O.C.
Name for contact purposes:	Y.Y. Chiou
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Fax:	+886 2 2627 1600
e-mail address:	yychiou@alltekmarine.com

1.3 DATES

Date of Receipt of Test Sample:	7. November 2011
Start of test:	7. November 2011
Finish of test:	9. November 2011

1.4 TEST LABORATORY

The tests were carried out at: **PHOENIX TEST-LAB GmbH**
Königswinkel 10
D-32825 Blomberg **Tel: +49 (0) 52 35 / 95 00-0**
Germany **Fax: +49 (0) 52 35 / 95 00-10**

Test engineer:	Raimund BLASK		16 January 2012
	Name	Signature	Date
Authorized reviewer:	Bernd STEINER		16 January 2012
	Name	Signature	Date

1.5 RESERVATION

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The test results herein refer only to the tested sample. PHOENIX TESTLAB GmbH is not responsible for any generalisations or conclusions draw from these test results and concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page contains the PHOENIX TESTLAB Logo and the TEST REPORT REFERENCE.

1.6 REFERENCES

[1] IEC 61097-14 Edition 1.0: 2010-02; GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM (GMDSS)
Part 14: AIS search and rescue transmitter (AIS-SART)
Operational and performance requirements, methods of testing and required test results

2. TECHNICAL DATA OF EQUIPMENT

Type:	AIS SART
Type designation:	Plomo-500
Serial No.:	970160007
Alignment range:	Channel A: 161.975 / Channel B: 162.025 MHz
Switching range:	Channel A: 161.975 / Channel B: 162.025 MHz
Channel separation:	25 kHz
Rated RF output power:	1W EIRP
Supply Voltage:	U_{nom}= 5.7 V DC U_{min}= 4.9 V DC U_{max}= 6.0 V DC
Temperature range:	-20°C to +55°C
Printed circuit designation:	M-PCB-SARTV03
Hardware:	M-PCB-SARTV03
Software:	SART Ver. 1.1

Ports/Connectors

Identification	Connector		Length
	EUT	Ancillary	
-	-	-	-

3. ADDITIONAL INFORMATION

General:
Full tests were carried out at 161.975 MHz and 162.025 MHz.
The EUT was powered by an external 6 V-DC-Power-Supply.

Test Report History:

Test Report Number:	Date of issue:	Report Status:
F112488E1	14 November 2011	First issue
F112488E1 2nd Version	16 January 2012	Spurious emission results in the frequency range 406.000 to 406.100 MHz added. Transmitter Trainings-Sequence-Plots added to show that the Trainings-Sequence starts with “0”.
-	-	-

4. TEST OVERVIEW

Part 7	Physical Radio Tests		
7.1	**General description**		
7.2	Frequency error	Applicable	Passed
7.3	Conducted power	Applicable	Passed
7.4	Radiated power	Applicable	Passed
7.5	Modulation spectrum slotted transmission	Applicable	Passed
7.6	Transmitter test sequence and modulation accuracy	Applicable	Passed
7.7	Transmitter output power versus time function	Applicable	Passed
7.8	Spurious emissions from the transmitter	Applicable	Passed

5. TRANSMITTER REQUIREMENTS

5.1 FREQUENCY ERROR — SUBCLAUSE 7.2

Ambient temperature	20 °C

Relative humidity	45 %

Operation mode: Continuous transmission without modulation, f = 161.975 MHz

TEST CONDITIONS		FREQUENCY	FREQUENCY ERROR
Temperature	Voltage		
T_{nom} (+20°C)	U_{nom} (5.7 V DC)	161.974875 MHz	-125 Hz
T_{min} (-20°C)	U_{min} (4.9 V DC)	161.974519 MHz	-481 Hz
	U_{max} (6.0 V DC)	161.974522 MHz	-478 Hz
T_{max} (+55°C)	U_{min} (4.9 V DC)	161.974587 MHz	-413 Hz
	U_{max} (6.0 V DC)	161.974585 MHz	-415 Hz
Maximum frequency error		-481 Hz	
Measurement uncertainty		± 10 Hz	

Operation mode: Continuous transmission without modulation, f = 162.025 MHz

TEST CONDITIONS		FREQUENCY	FREQUENCY ERROR
Temperature	Voltage		
T_{nom} (+20°C)	U_{nom} (5.7 V DC)	162.024870 MHz	-130 Hz
T_{min} (-20°C)	U_{min} (4.9 V DC)	162.024515 MHz	-485 Hz
	U_{max} (6.0 V DC)	162.024520 MHz	-480 Hz
T_{max} (+55°C)	U_{min} (4.9 V DC)	162.024585 MHz	-415 Hz
	U_{max} (6.0 V DC)	162.024590 MHz	-410 Hz
Maximum frequency error		-485 Hz	
Measurement uncertainty		± 10 Hz	

LIMITS: SUBCLAUSE 7.2.3

The frequency error shall not exceed ± 0.5 kHz under normal and ± 1 kHz under extreme conditions.

TEST EQUIPMENT USED:

6, 42, 51, 80 - 82

5.2 CARRIER POWER (CONDUCTED) SUBCLAUSE 7.3

Ambient temperature	20°C	Relative humidity	45%

Operation mode: Transmit mode, f = 161.975 MHz

Test conditions		Carrier Power (conducted)	
T_{nom} (+20°C)	U_{nom} (5.7 V DC)	P_{20}	32.3 dBm
T_{min} (-20°C)	U_{min} (4.9 V DC)	P_{-20}	31.6 dBm
	U_{max} (6.0 V DC)		34.0 dBm
T_{max} (+55°C)	U_{min} (4.9 V DC)	P_{+55}	30.8 dBm
	U_{max} (6.0 V DC)		33.3 dBm
Minimum Carrier Power		-1.5 dB	
Measurement uncertainty		+ 0.66 dB / - 0.72 dB	

Operation mode: Transmit mode, f = 162.025 MHz

Test conditions		Carrier Power (conducted)	
T_{nom} (+20°C)	U_{nom} (5.7 V DC)	P_{20}	32.5 dBm
T_{min} (-20°C)	U_{min} (4.9 V DC)	P_{-20}	31.7 dBm
	U_{max} (6.0 V DC)		34.1 dBm
T_{max} (+55°C)	U_{min} (4.9 V DC)	P_{+55}	30.7 dBm
	U_{max} (6.0 V DC)		33.5 dBm
Minimum Carrier Power		-1.6 dB	
Measurement uncertainty		+ 0.66 dB / - 0.72 dB	

LIMITS: SUBCLAUSE 7.3.3 (see Table 7):

	Minimum Limit:	
P_R	+27dBm	Radiated minimum
P_{20}	-	-
Calculated Gain	-	$G = P_R - P_{20}$
P_{-20} - G	+27dBm	Lower extreme temperature
P_{+55} - G	+27dBm	Upper extreme temperature

TEST EQUIPMENT USED:

6, 42, 51, 80 - 82

5.3 RADIATED POWER — SUBCLAUSE 7.4

Ambient temperature	20°C	Relative humidity	40%

Operation mode: Transmit mode, f = 161.975 MHz, in use with internal battery for 92 hours.

Test conditions		Measured Power P_R (radiated)	Measured Power P_{20} (conducted)	Calculated Antenna-Gain $G = P_R - P_{20}$	Minimum Power (radiated)*
T_{nom} (+20°C)	Angle = 0°	+30.2 dBm	32.3 dBm	-2.1 dBi	+28.7 dBm
	Angle = 90°	+29.7 dBm		-2.6 dBi	+28.2 dBm
	Angle = 180°	+30.1 dBm		-2.2 dBi	+28.6 dBm
	Angle = 270°	+30.2 dBm		-2.1 dBi	+28.7 dBm
Measurement uncertainty		+2.2 dB / -3.6 dB			

*Calculated by using the Results of (P_{-20}) and (P_{55}) from Subclause 7.3

Operation mode: Transmit mode, f = 162.025 MHz, in use with internal battery for 92 hours.

Test conditions		Measured Power P_R (radiated)	Measured Power P_{20} (conducted)	Calculated Antenna-Gain $G = P_R - P_{20}$	Minimum Power (radiated)*
T_{nom} (+20°C)	Angle = 0°	+29.8 dBm	32.5 dBm	-2.7 dBi	+28.2 dBm
	Angle = 90°	+30.1 dBm		-2.4 dBi	+28.5 dBm
	Angle = 180°	+30.6 dBm		-1.9 dBi	+29.0 dBm
	Angle = 270°	+30.7 dBm		-1.8 dBi	+29.1 dBm
Measurement uncertainty		+2.2 dB / -3.6 dB			

*Calculated by using the Results of (P_{-20}) and (P_{55}) from Subclause 7.3

LIMITS: SUBCLAUSE 7.4.3

	Minimum Limit:	
P_R	+27dBm	Radiated minimum
P_{20}	-	-
Calculated Gain	-	$G = P_R - P_{20}$
P_{-20} - G	+27dBm	Lower extreme temperature
P_{+55} - G	+27dBm	Upper extreme temperature

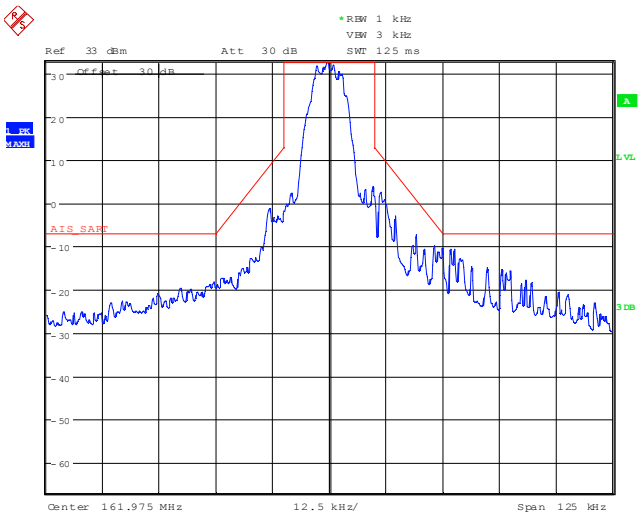
TEST EQUIPMENT USED:

123 - 129

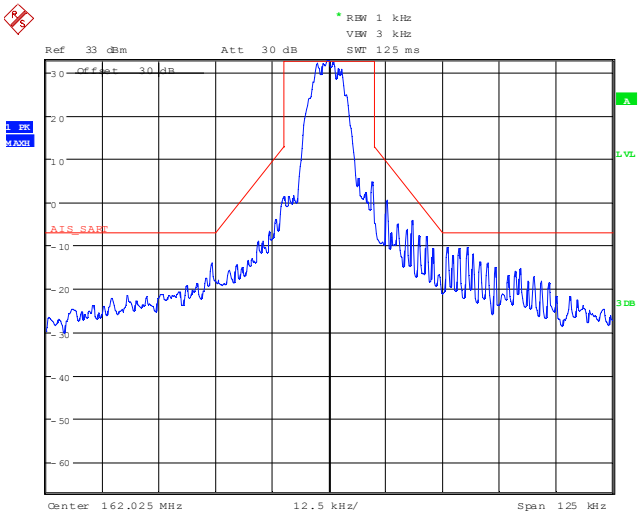
5.4 MODULATION SPECTRUM SLOTTED SPECTRUM SUBCLAUSE 7.5

Ambient temperature	20 °C	Relative humidity	45 %

Operation mode: Transmit mode



161spec: Transmit 161.975 MHz



162spec: Transmit 162.025 MHz

LIMITS: SUBCLAUSE 7.5.3

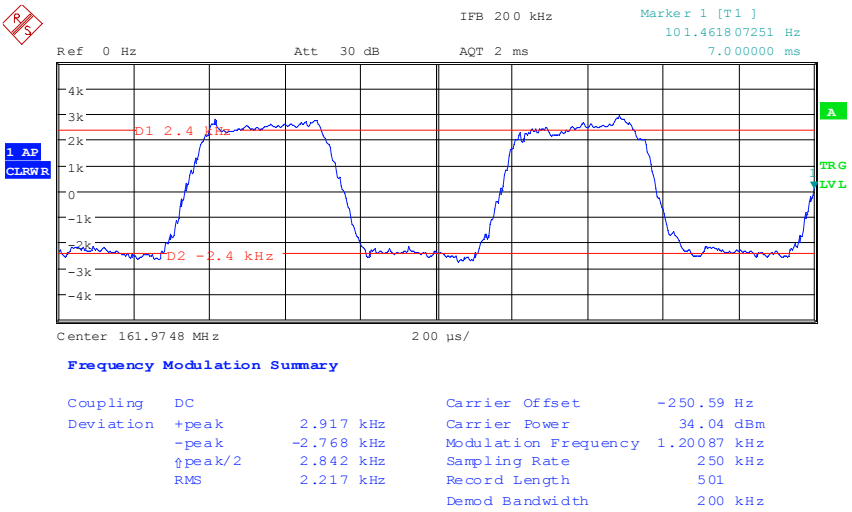
At ± 10 kHz removed from the carrier, the modulation sideband is below - 20dBc. At ± 25 kHz to ± 62.5 kHz removed from the carrier, the modulation sideband is below - 40dBc In the region ± 10 kHz and ± 25 kHz removed from the carrier, the modulation and transient sideband is below a line specified between these two points.

TEST EQUIPMENT USED:

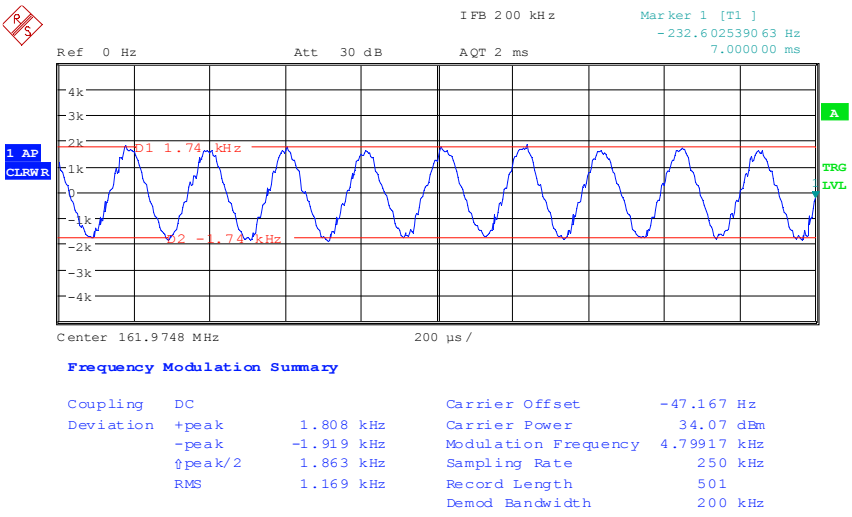
06, 42, 79-81, 100-102

5.5 TRANSMITTER TEST SEQUENCE AND MODULATION ACCURACY SUBCLAUSE 7.6

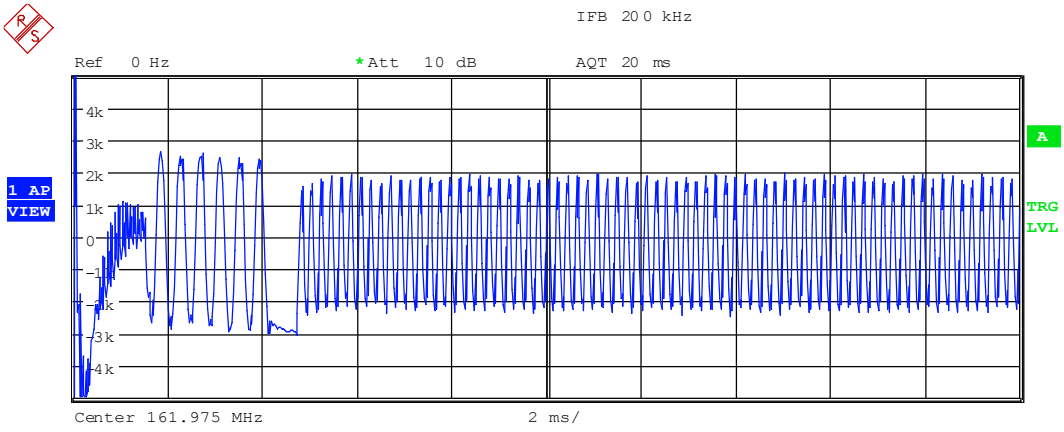
Ambient temperature	20 °C	Relative humidity	55 %



161modacc1: 161.975 MHz



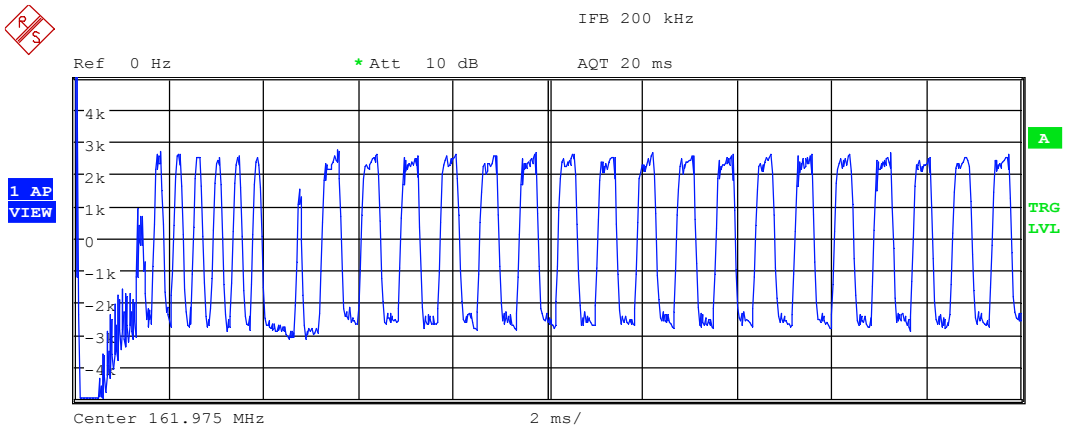
161modacc2: 161.975 MHz



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-239.32 Hz
Deviation	+peak	42.73 kHz	Carrier Power	36.01 dBm
	-peak	-63.07 kHz	Modulation Frequency	--- Hz
	⇧peak/2	52.90 kHz	Sampling Rate	125 kHz
	RMS	2.406 kHz	Record Length	2501
			Demod Bandwidth	100 kHz

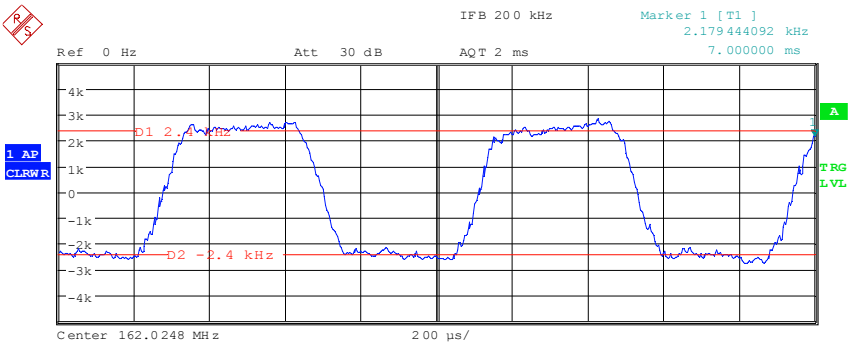
161modacc3: 161.975 MHz, Test-Signal 1



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-159.91 Hz
Deviation	+peak	46.31 kHz	Carrier Power	35.99 dBm
	-peak	-9.058 kHz	Modulation Frequency	--- Hz
	⇧peak/2	27.68 kHz	Sampling Rate	125 kHz
	RMS	2.706 kHz	Record Length	2501
			Demod Bandwidth	100 kHz

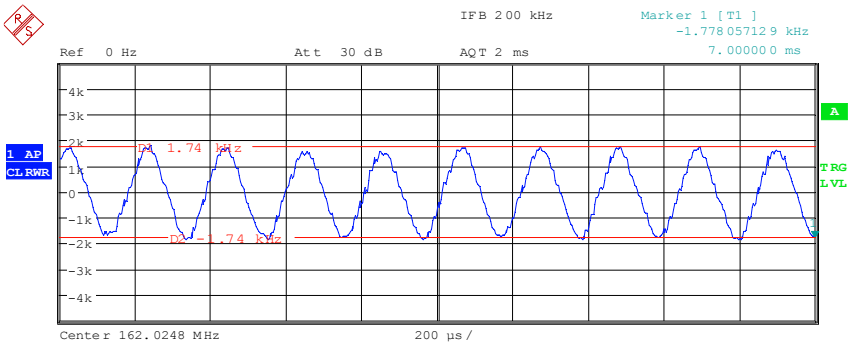
161modacc4: 161.975 MHz, Test-Signal 2



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-186.71 Hz
Deviation	+peak	2.814 kHz	Carrier Power	34.01 dBm
	-peak	-2.784 kHz	Modulation Frequency	1.19987 kHz
	⇧peak/2	2.799 kHz	Sampling Rate	250 kHz
	RMS	2.230 kHz	Record Length	501
			Demod Bandwidth	200 kHz

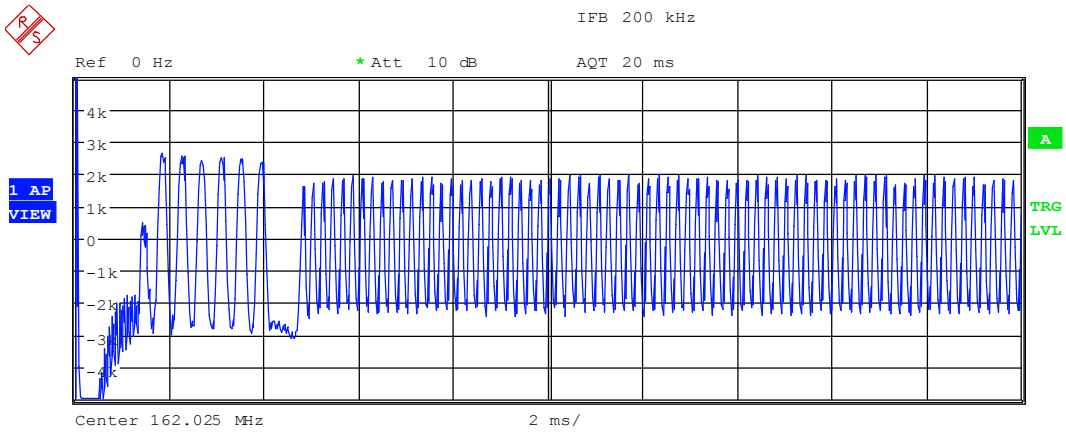
162modacc1: 162.025 MHz



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-64.401 Hz
Deviation	+peak	1.798 kHz	Carrier Power	34.09 dBm
	-peak	-1.878 kHz	Modulation Frequency	4.80412 kHz
	⇧peak/2	1.838 kHz	Sampling Rate	250 kHz
	RMS	1.174 kHz	Record Length	501
			Demod Bandwidth	200 kHz

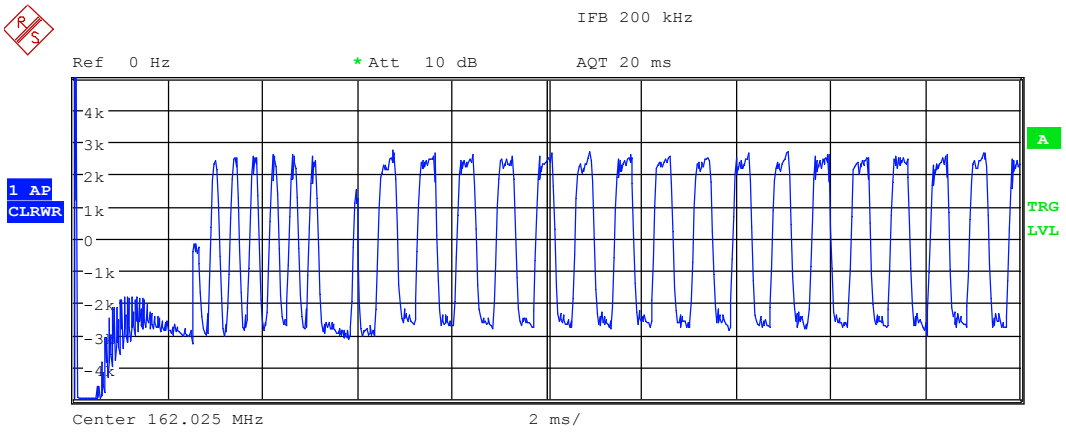
162modacc1: 162.025 MHz



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-240.27 Hz
Deviation	+peak	37.98 kHz	Carrier Power	36.00 dBm
	-peak	-64.49 kHz	Modulation Frequency	--- Hz
	⇕peak/2	51.24 kHz	Sampling Rate	125 kHz
	RMS	2.568 kHz	Record Length	2501
			Demod Bandwidth	100 kHz

162modacc3: 162.025 MHz, Test-Signal 1



Frequency Modulation Summary

Coupling	DC		Carrier Offset	-214.84 Hz
Deviation	+peak	46.87 kHz	Carrier Power	35.99 dBm
	-peak	-48.66 kHz	Modulation Frequency	--- Hz
	⇕peak/2	47.77 kHz	Sampling Rate	125 kHz
	RMS	2.961 kHz	Record Length	2501
			Demod Bandwidth	100 kHz

162modacc4: 162.025 MHz, Test-Signal 2

LIMITS: SUBCLAUSE 7.6.3

See table 8.

Additional Information:

Due to the fact that the measurement results under extreme test conditions are equal to the results under normal test-conditions the additional plots from the measurement under extreme conditions are not documented in this test-report.

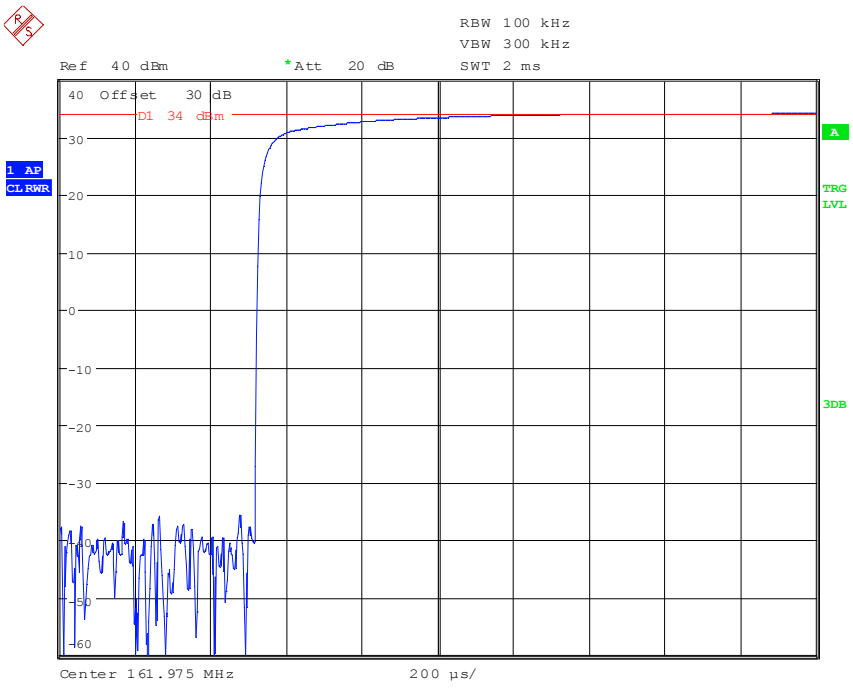
TEST EQUIPMENT USED:

6, 42, 80 - 82

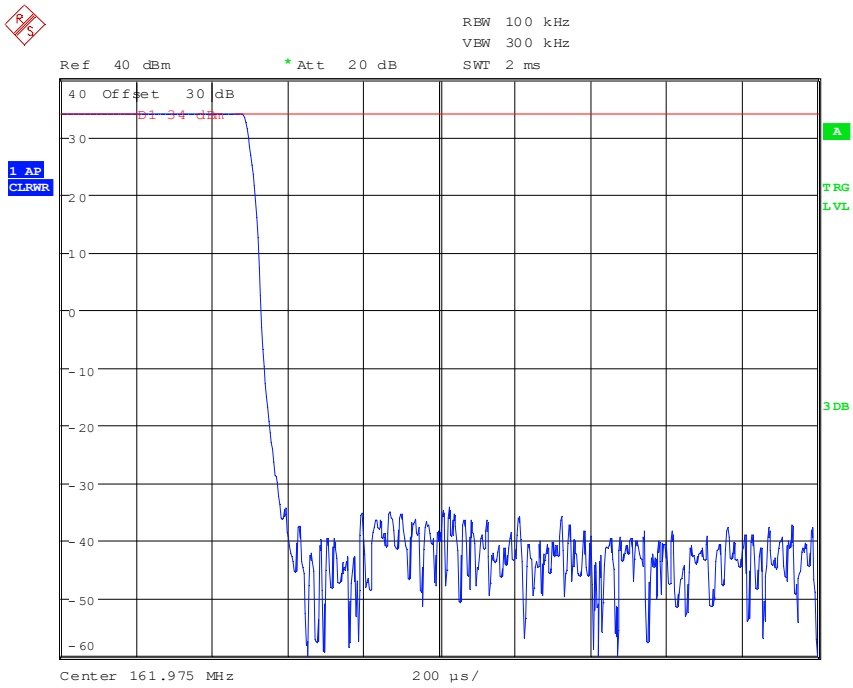
5.6 TRANSMITTER OUTPUT POWER VERSUS TIME FUNCTION SUBCLAUSE 7.7

Ambient temperature	20 °C	Relative humidity	55 %

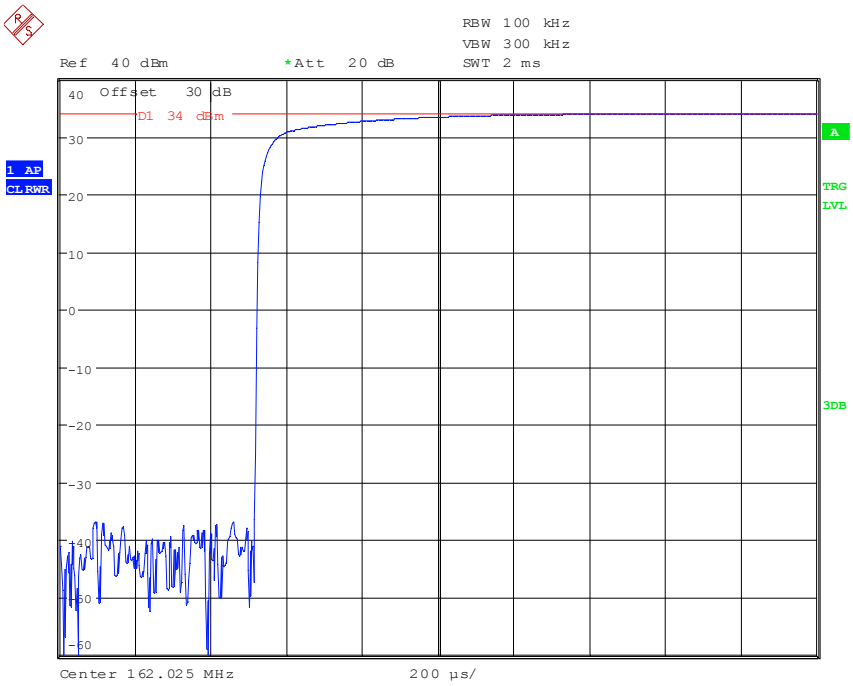
Operation mode: Transmit mode



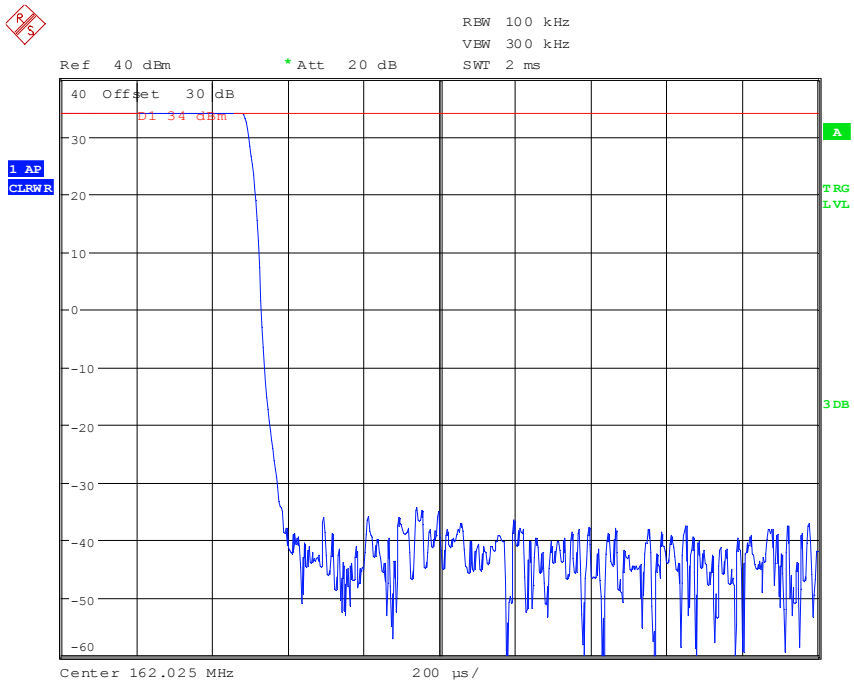
on161: 161.975 MHz, Power-Ramp-up



off161: 161.975 MHz, Power-Ramp-down



on162: 162.025 MHz, Power-Ramp-up



off162: 162.025 MHz, Power-Ramp-down

Additional Information:

Due to the fact that the measurement results under extreme test conditions are equal to the results under normal test-conditions the additional plots from the measurement under extreme conditions are not documented in this test-report.

LIMITS: SUBCLAUSE 7.7.3

See table 9.

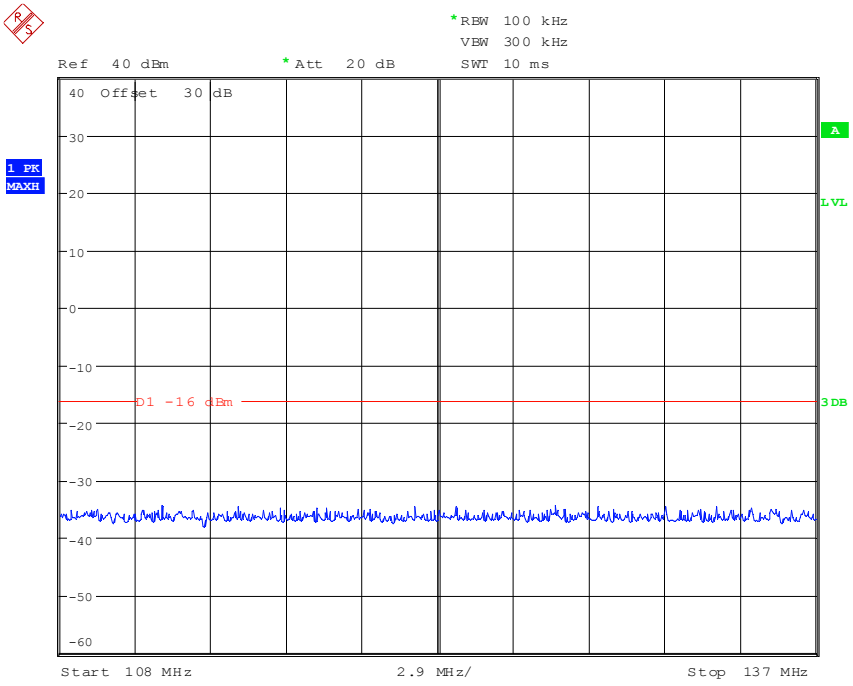
TEST EQUIPMENT USED:

6, 42, 80 - 82

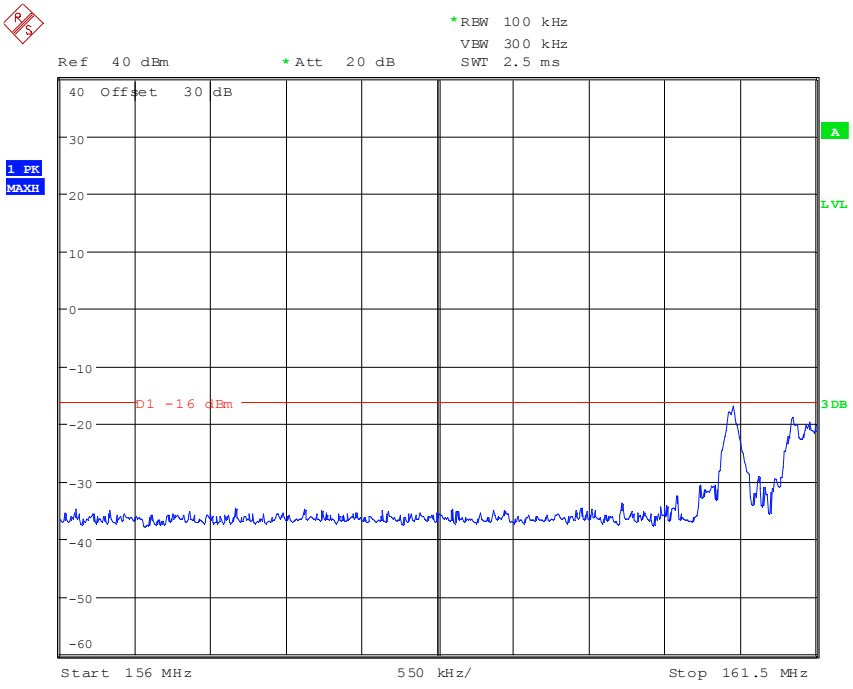
5.7 SPURIOUS EMISSIONS FROM THE TRANSMITTER SUBCLAUSE 7.8

Ambient temperature	20 °C	Relative humidity	45 %

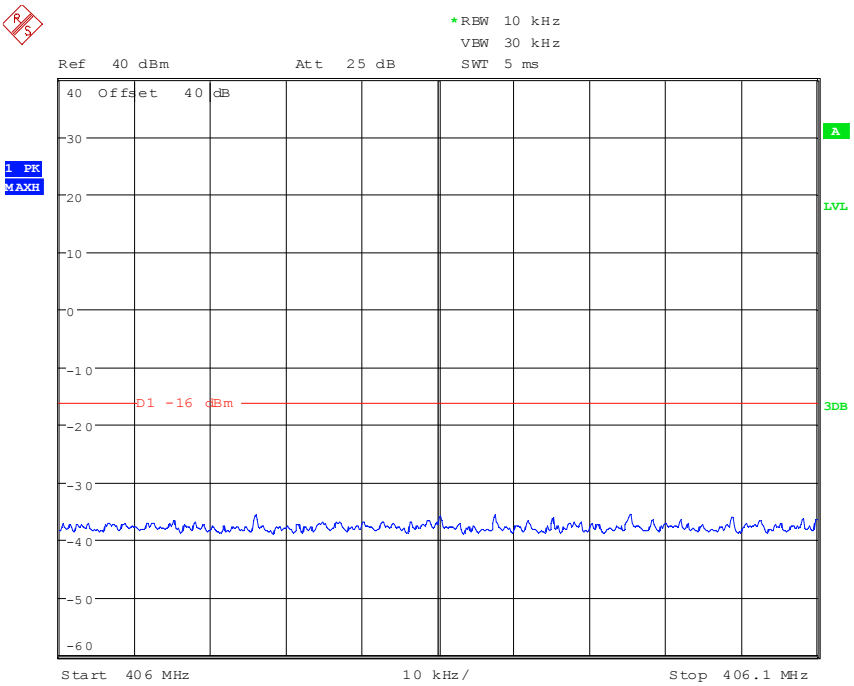
Operation mode: Transmit, f = 161.975 MHz



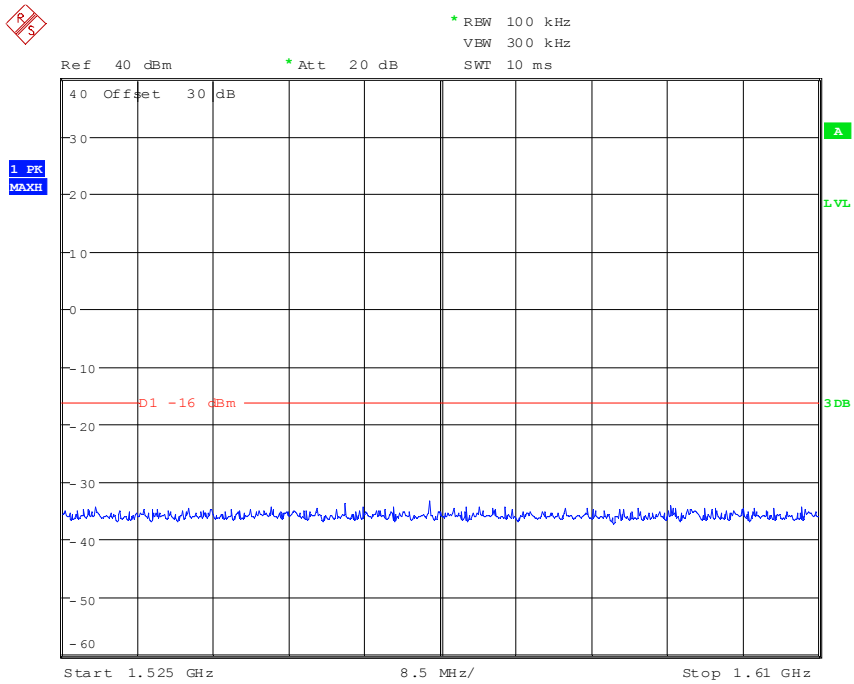
161emi1: 108 to 137 MHz, transmit mode



161emi2: 156 to 161.5 MHz, transmit mode



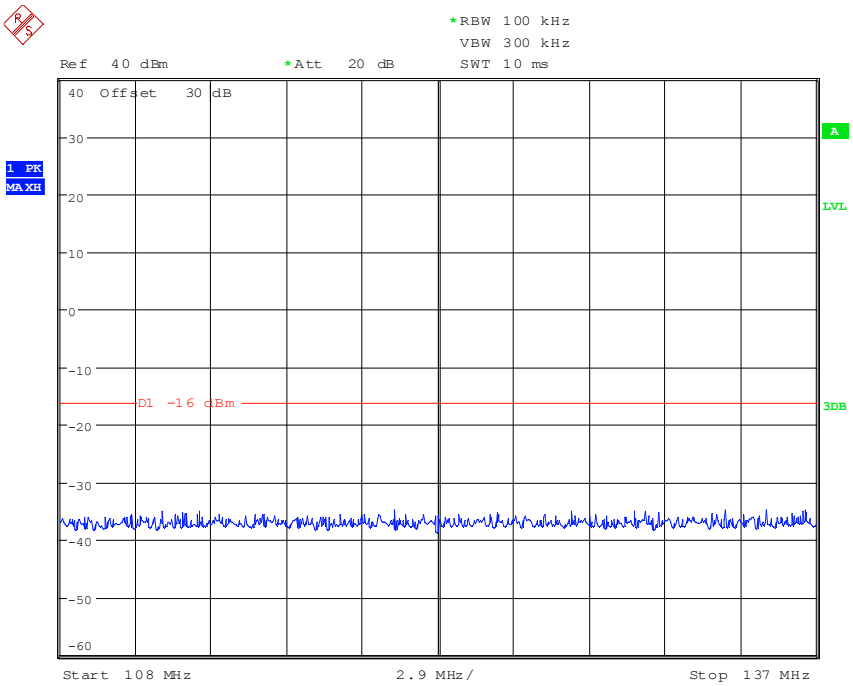
161emi3: 406 to 406.1 MHz, transmit mode



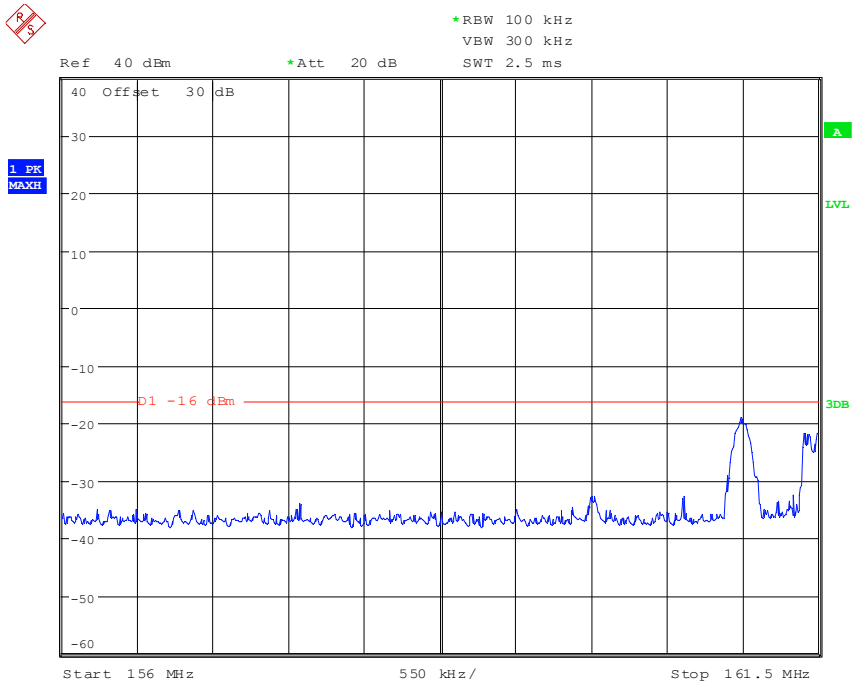
161emi4: 1525 to 1610 MHz, transmit mode

SPURIOUS EMISSIONS LEVEL (CONDUCTED)					
f	Level	Bandwidth	Limit	Margin	Result
160.970 MHz	-17.5 dBm	100 kHz	-16 dBm	1.5 dB	passed
161.335 MHz	-18.5 dBm	100 kHz	-16 dBm	2.5 dB	passed
-	-	-	-	-	-
Measurement uncertainty		+ 0.66 dB / - 0.72 dB			

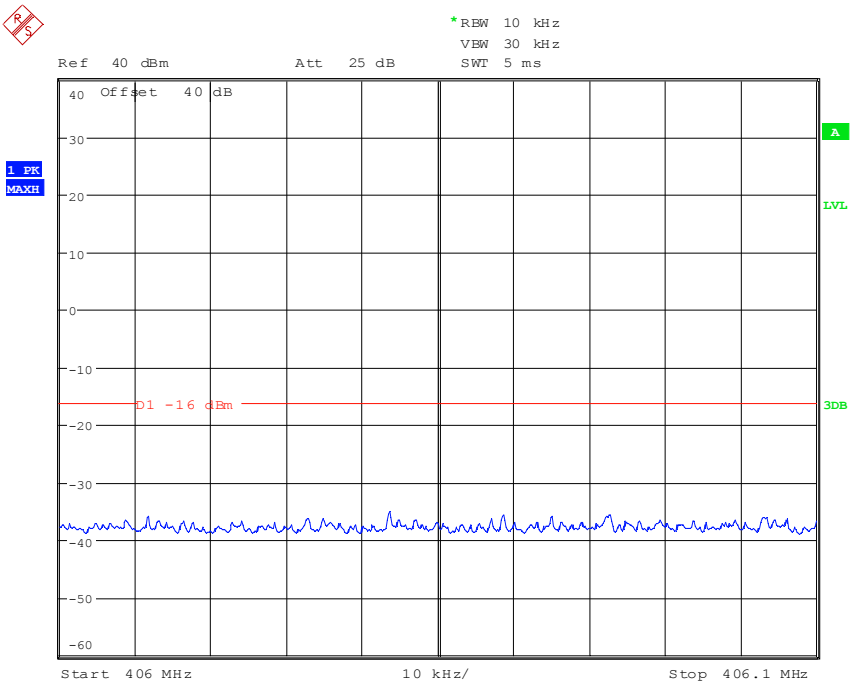
Operation mode: Transmit, f = 162.025 MHz



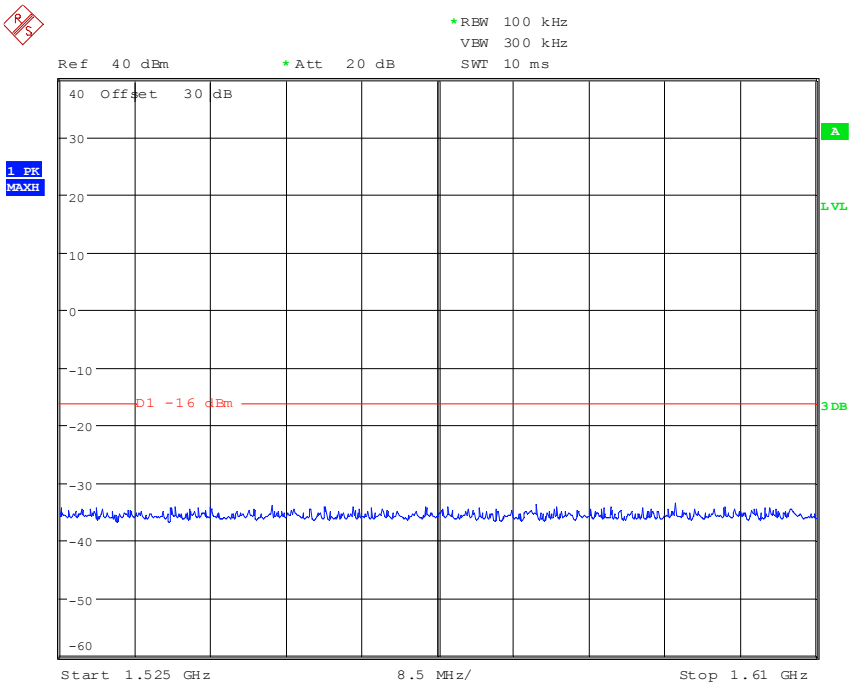
162emi1: 108 to 137 MHz, transmit mode



162emi2: 156 to 161.5 MHz, transmit mode



162emi3: 406 to 406.1 MHz, transmit mode



162emi4: 1525 to 1610 MHz, transmit mode

SPURIOUS EMISSIONS LEVEL (CONDUCTED)					
f	Level	Bandwidth	Limit	Margin	Result
160.950 MHz	-19.0 dBm	100 kHz	-16 dBm	3.0 dB	passed
-	-	-	-	-	-
-	-	-	-	-	-
Measurement uncertainty		+ 0.66 dB / - 0.72 dB			

LIMITS: SUBCLAUSE 7.8.3

Frequency range	108 to 136 MHz 156 to 161.5 MHz 406 to 406.1 MHz 1525 to 1610 MHz
TX operating	25 µW (- 16 dBm)

TEST EQUIPMENT USED:

07, 42, 79-81, 111, 112

6. TEST EQUIPMENT

No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
01	Fully anechoic chamber M8	-	Siemens Matsushita	B83117-E7019-T231	480190
02	Fully anechoic chamber M20	-	Albatross Projects	B83107-E2439-T232	480303
03	Open area test site	-	Phoenix Test-Lab	-	480085
04	Outdoor test site	-	Phoenix Test-Lab	-	480293
06	Spectrum Analyser	FSU	Rohde & Schwarz	200125	480956
07	Measuring Receiver	ESI 40	Rohde & Schwarz	837808/007	480335
08	Measuring Receiver	ESCS 30	Rohde & Schwarz	828985/014	480270
09	Spectrum Analyser	R2361C	Advantest	51720469	480144
10	Loop antenna	HFH2-Z2	Rohde & Schwarz	832609/014	480059
11	BILOG Antenna	CBL6112 A	Chase	2034	480185
12	BILOG Antenna	CBL6112 B	Chase	2688	480328
13	Bikon Antenna	HK 116	Rohde & Schwarz	833599/008	480071
14	Bikon Antenna	HK 116	Rohde & Schwarz	836891/012	480122
15	Log-Per Antenna	HL 223	Rohde & Schwarz	835556/014	480123
16	Log-Per Antenna	HL 223	Rohde & Schwarz	833335/005	480072
17	Horn Antenna	3115 A	EMCO	9609-4918	480183
18	Horn Antenna	3115 B	EMCO	9609-4922	480184
19	Precision Dipole	HZ 12	Rohde & Schwarz	831781/02	480061
20	Precision Dipole	HZ 13	Rohde & Schwarz	831782/02	480062
21	Shorted Dipole	VHAA 9110	Schwarzbeck	143	480166
22	Power amplifier	25A100	AR	12610	480023
23	Loop Antenna ∅ = 110 mm	-	Phoenix Test-Lab	-	410084
24	Signal generator	SMP 03	Rohde & Schwarz	848986/004	480245
25	Signal generator	SMHU	Rohde & Schwarz	844170/017	480266
26	Signal generator	SME 06	Rohde & Schwarz	844530/008	480174
27	Signal generator	SMG	Rohde & Schwarz	8334497/030	480013
28	Signal generator	83650L	Agilent	3844A00554	480333
29	Radio communication analyser	CMTA 54	Rohde & Schwarz	841904/011	480169
30	Oscilloscope 4channel	54540A	Hewlett Packard	3339A00192	480001
31	Oscilloscope 2 channel	54520A	Hewlett Packard	3344A00390	480007
32	Signal generator	TOE 7704	TOELLNER	39385	480008

No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
33	Combiner	ZFSC-2-11	Mini Circuits	-	410089
34	Combiner	ZFSC-2-11	Mini Circuits	-	410090
35	Power splitter	11850C	Hewlett Packard	01052	410069
36	Power splitter	-	Suhner	-	410070
37	Symmetrical transformer	-	Phoenix Test Lab	-	410086
38	Feeding bridge A	-	Phoenix Test Lab	-	410087
39	Feeding bridge A	-	Phoenix Test Lab	-	410088
40	Regulating transformer	BR802	Block	-	480094
41	Regulating transformer	BR802	Block	-	480095
42	Power supply	TOE 8872	Toellner	61005	480833
43	Power supply	TOE 8852	Toellner	51712	480233
44	Power supply	TOE 8752	Toellner	31569	480009
46	Power supply	TOE 8852	Toellner	51786	490001
47	Climatic chamber	KS600/75L	RS-Simulatoren	19002901	490065
48	Climatic chamber	KS600/75	RS-Simulatoren	19004201	490070
49	Climatic chamber	ST2K220/75	RS-Simulatoren	9803901	490020
50	Climatic chamber	ST2K220/75	RS-Simulatoren	2002701	490072
51	Climatic chamber	-	Binder	-	480462
52	Double circulator	-	Motorola	-	-
53	Directional coupler	ZFDC-2O-5	Mini Circuits	-	410092
54	Directional coupler	4001B-20	Narda Microwave	02010	410150
55	Directional coupler	774D	Hewlett Packard	06375	410149
56	Impedance matching unit	-	Phoenix-Test-Lab	-	410091
57	High Pass Filter	HP-350	Dirk Fischer Elektronik	-	410151
58	High Pass Filter	HP-450	Dirk Fischer Elektronik	-	410152
59	High Pass Filter	HP-1000	Dirk Fischer Elektronik	-	410147
60	IF-Filter 20kHz/25kHz	MQF 10.7-1400/11	Telefilter	0043	480323
61	IF-Filter 12.5kHz	MQF 10.7-0850/11	Telefilter	0043	480324
62	Notch Filter	TTR 375-3EE	TELONIC Berkeley	-	480330
63	Notch Filter	TTR 190-3EE	TELONIC Berkeley	97284-6	480331
64	Notch Filter	TTR 95-3EE	TELONIC Berkeley	00104-2	480332
65	Mixer	ZP-1	Mini Circuits	15542	410148

No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
66	Variable Attenuator / 0-11 dB	8494B	Hewlett Packard	3308A38264	480264
67	Variable Attenuator 0 - 110 dB	8496B	Hewlett Packard	3308A71365	480265
68	Attenuator / 3 dB / 5 W	WA2-3	Weinschel	8250	410115
69	Attenuator / 3 dB / 5 W	WA2-3	Weinschel	8251	410116
70	Attenuator / 3 dB / 5 W	WA2-3	Weinschel	8252	410117
71	Attenuator / 3 dB / 50 W	33-3-34	Weinschel	BH 5062	410131
72	Attenuator / 6 dB / 5 W	WA2-6	Weinschel	8253	410118
73	Attenuator / 6 dB / 5 W	WA2-6	Weinschel	8254	410119
74	Attenuator / 6 dB / 5 W	WA2-6	Weinschel	8255	410120
75	Attenuator / 6 dB / 25 W	33-6-34	Weinschel	BH 5536	410128
76	Attenuator / 10 dB / 1 W	6810.17A	Huber + Suhner	-	410067
77	Attenuator / 10 dB / 5 W	WA2-10	Weinschel	8259	410121
78	Attenuator / 10 dB / 5 W	WA2-10	Weinschel	8260	410122
79	Attenuator / 10 dB / 5 W	WA2-10	Weinschel	8261	410123
80	Attenuator / 10 dB / 10 W	WA8-10	Weinschel	7538	410112
81	Attenuator / 10 dB / 25 W	33-10-34	Weinschel	BH 4878	410129
82	Attenuator / 10 dB / 25 W	33-10-34	Weinschel	BH 4856	410130
83	Attenuator / 10 dB / 100 W	BN 745353	Spinner	20262	480274
84	Attenuator / 20 dB / 1 W	6820.17A	Huber + Suhner	-	410068
85	Attenuator / 20 dB / 5 W	WA2-20	Weinschel	8256	410124
86	Attenuator / 20 dB / 5 W	WA2-20	Weinschel	8257	410125
87	Attenuator / 20 dB / 5 W	WA2-20	Weinschel	8258	410126
88	Attenuator / 20 dB / 10 W	WA8-20	Weinschel	7539	410113
89	Attenuator / 30 dB / 200 W	BN 745395	Spinner	29971	480232
90	Termination / 50 Ω / 15 W	6515.17.A	Huber + Suhner	-	410078
91	Termination / 50 Ω / 0.5 W	6500.17.A	Huber + Suhner	-	410074
92	Termination / 50 Ω / 0.5 W	6500.17.A	Huber + Suhner	-	410075
93	RF-cable No. 1	RTK 081	Rosenberger	-	410093
94	RF-cable No. 2	RTK 081	Rosenberger	-	410094
95	RF-cable No. 3	RTK 081	Rosenberger	-	410095
96	RF-cable No. 4	RTK 081	Rosenberger	-	410096
97	RF-cable No. 5	RTK 081	Rosenberger	-	410097
98	RF-cable No. 6	RTK 081	Rosenberger	-	410098
99	RF-cable No. 7	Sucoflex	Huber + Suhner	-	410099

No.	Test equipment	Type	Manufacturer	Serial No.	PM-No
100	RF-cable No. 8	RG223	Phoenix-Test-Lab	-	410100
101	RF-cable No. 9	RG223	Phoenix-Test-Lab	-	410101
102	RF-cable No. 10	RG223	Phoenix-Test-Lab	-	410102
103	RF-cable No. 11	RG223	Phoenix-Test-Lab	-	410103
104	RF-cable No. 12	RG223	Phoenix-Test-Lab	-	410104
105	RF-cable No. 13	RG223	Phoenix-Test-Lab	-	410105
106	RF-cable No. 14	RG223	Phoenix-Test-Lab	-	410106
107	RF-cable No. 15	RG223	Phoenix-Test-Lab	-	410107
108	RF-cable No. 16	RG223	Phoenix-Test-Lab	-	410108
109	RF-cable No. 17	RG223	Phoenix-Test-Lab	-	410109
110	RF-cable No. 18	RG58	Phoenix-Test-Lab	-	410110
111	RF-cable No. 30	RTK 081	Rosenberger	-	410141
112	RF-cable No. 31	RTK 081	Rosenberger	-	410142
113	Oscilloscope	HM	HAMEG	-	480160
114	Probe	HM	HAMEG	-	410057
115	Power-Amplifier	AR25A250A	Amplifier Research	18647	480154
116	Combiner	ZFSC-2-11	Mini Circuits	-	410169
117	Signal generator	SMY 01	Rohde & Schwarz	-	580010
118	225 MHz Universal counter	53131 A	Hewlett & Packard	-	480134
119	Zirkulator	156-162MHz	DFE	-	410162
120	Zirkulator	156-162MHz	DFE	-	410163
121	Zirkulator	156-162MHz	DFE	-	410164
122	Zirkulator	156-162MHz	DFE	-	410165
123	Open area test site	M6	Phoenix Testlab	-	480085
124	Antenna mast	MA240	Deisel	240/315	480086
125	Turntable	DS412	Deisel	412/316	480087
126	Controller	HD100	Deisel	100/349	480139
127	EMI-Software-Package	ES-K1	Rohde & Schwarz	-	480111
128	Measuring-Receiver	ESI 7	Rohde & Schwarz	100304	480521
129	Bi.-Log-Antenna	CBL6111D	Teseq GmbH	25761	480894

7. LIST OF ANNEXES

ANNEX A	PHOTOGRAPHS	7 pages
	PHOTOGRAPHS OF THE TEST SET-UP	
	Test set-up radiated power	112488emi1.jpg
	Test set-up climatic chamber	112488clima1.jpg
	PHOTOGRAPHS OF THE TEST SAMPLE	
	EUT, 3D-view	112488eut1.jpg
	EUT, 3D-view	112488eut2.jpg
	EUT, inside-view	112488eut3.jpg
	PCB, front-view	112488eut5.jpg
	PCB, rear-view	112488eut6.jpg