

Produktsicherheit und -qualität
Elektromagnetische Verträglichkeit und Telekommunikation

TÜV Rheinland Product Safety GmbH · 51101 Köln

KaiTec
Berliner Str. 12
D-63846 Laufach

Oswin Schaefer
Os
Tel. +49 2 21-8 06-3313
Fax +49 2 21-8 06-3440
Mail emc@de.tuv.com

Kunden-Service-Center für
Produktsicherheit und -qualität
Tel +49 2 21-8 06-1400

Köln, 29. Januar 2009

Sehr geehrter Herr Kaiser,

wir beziehen uns auf die Vorstellung Ihrer Relaisfunkstelle vom 20.01.2009 in unserem Hause. Basierend auf unseren Prüfberichten SRD_21139959_001 für TKR 751 und RD_21139959_002 für TKR 851 und Ihren Angaben als Hersteller der Relaisfunkstelle, dass am Sende/Empfangsgerät TKR 751 bzw. TKR 851 der Anlage lediglich eine HF-Referenzeinspeisung zur hochstabilen HF-Aussendung für Gleichwellenfunkanlagen vorgenommen worden ist, können wir Ihnen bestätigen, dass auch nach erfolgter Modifikation die Anlage weiterhin die R&TTE Zulassungsbedingungen aufgrund der Kenwood Konformitätserklärungen für TKR 751 und TKR 851 vom 20. Januar 2004 erfüllt.

Freundliche Grüße



i.V. Oswin Schaefer

TÜV Rheinland
Product Safety GmbH

TÜV Rheinland Group

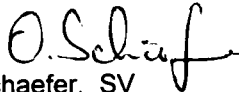

Am Grauen Stein
51105 Köln

Tel. +49 180 3 112112
Fax +49 180 3 000169
Mail safety@tuv.com
Web www.tuv.com/safety

Geschäftsführung

Dipl.-Ing. Michael Jungnitsch

Köln HRB 25960
UST-ID Nr.: DE 811835490

Prüfbericht - Nr.: 21139959_001		Seite 1 von 11
Test Report No.:		Page 1 of 11
Auftraggeber: Client:	KaiTec D-63768 Hösbach Siemensstraße 10	
Gegenstand der Prüfung: External Ref Oszillator Test item:		
Bezeichnung: Identification:	BTS 2010 with TKR 751	Serien-Nr.: --- Serial No.:
Wareneingangs-Nr.: Receipt No.:	---	Eingangsdatum: --- Date of receipt:
Prüfört: Testing location:	TÜV Rheinland Product Safety GmbH, Köln, Germany	
Prüfgrundlage: Test specification:	EN 300 086-02 V1.1.1 Spot test	
Prüfergebnis: Test Result:	Der Prüfgegenstand entspricht oben genannten Prüfgrundlagen The test item passed the test specification(s)	
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland Product Safety GmbH, Köln, Germany	
geprüft / tested by:	kontrolliert / reviewed by:	
2009-01-28 O.Schaefer, SV 	2009-01-28 K. Jauernik, SV 	
Datum Date	Name / Stellung Name / Position	Unterschrift Signature
Datum Date	Name / Stellung Name / Position	Unterschrift Signature
Sonstiges / Other Aspects: None		
Anhang / Annex: None		
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(all) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations: P(ass) = passed F(all) = failed N/A = not applicable N/T = not tested
<p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p>		

Verwendete Messgeräte sind in der linken Spalte mit einem Kreuz **x** markiert
[used instruments are marked with an **x** in the left column]

Störaussendung [emission]		Type	Hersteller [manufacturer]	Inv. – Nr. /Ser. - Nr.	kal. bis [cal. till]
Test / Gerät [test / device]					
Elektr. Funkstörfeldstärke 2					
[radiated disturbance SAC]					
	EMI Receiver 25-1000MHz	VUMA 1521 A	Schwarzbeck	14200621	2009-01
	EMI Receiver 25-1000MHz	VUMA 1524	Schwarzbeck	14200418	2009-03
	EMI Receiver < 2,75GHz	ESCS 30	Rohde & Schwarz	14201360	2010-01
	EMI Receiver < 26,5GHz	ESU 26	Rohde & Schwarz	30401912	2009-11
x	EMI Receiver < 26,5GHz	ESMI	Rohde & Schwarz	14200550	2010-10
x	BiConiLog-Ant 26-3000MHz	3142B	EMCO	14201363	2011-06
	Horn-Ant. 0,8-5GHz	BBHA 9120A	Schwarzbeck	30402211	2010-09
x	Horn-Ant 1-10GHz	BBHA 9120B 202	Schwarzbeck	14200694	2010-02
	Horn-Ant 1-10GHz	BBHA 9120B 204	Schwarzbeck	14200695	2009-10
	Horn-Ant 2-18GHz	BBHA 9120C 376	Schwarzbeck	30401857	2009-07
	Horn-Ant 2-18GHz	BBHA 9120C 377	Schwarzbeck	30401858	2009-03
	Horn-Ant 15-26,5GHz	BBHA 9170 311	Schwarzbeck	30401855	2009-03
	Horn-Ant 15-26,5GHz	BBHA 9170 312	Schwarzbeck	30401856	2009-03
x	Semi Anechoic Chamber SAC		ETS	14201372	2010-06
Weitere Messgeräte		Type	Hersteller [manufacturer]	Inv. – Nr. /Ser. - Nr.	kal. bis [cal. till]
[other testequipment]					
	Digital-Multimeter	Metra Hit 16	ABB	14200346	2010-06
x	Digital-Multimeter	Metra Hit 23S	Gossen	14200699	2009-09
	Oszilloskop [oscilloscope]	TDS 3052B	Tektronix	30401734	2010-02
x	Temperature / Humidity	615	testo	30401660	2009-08

Table of Contents

	Page
Cover Page	1
Table of Contents	2
Product Information.....	4
Manufacturers declarations.....	4
Submitted Documents.....	5
Remarks.....	5
Results EN 300 086-02 V1.1.1 - Essential radio test suites	6
Transmitter6
EN 300 086-02 – 4.2.6 Spurious emissions	Pass 6

Product Information

Manufacturers declarations

General	Declared temperature range T _{nor} : 23 °C T _{min} : - T _{max} : -
	Systems employs transponders <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Primary function <input type="checkbox"/> Data, message transfer <input type="checkbox"/> Audio transfer <input checked="" type="checkbox"/> Others, transfer of speech
Transmitter	Occupation bandwidth <input type="checkbox"/> Wideband equipment (frequency band > 25 kHz) <input checked="" type="checkbox"/> Narrow band equipment <input type="checkbox"/> not capable to produce an unmodulated carrier <input checked="" type="checkbox"/> capable to produce an unmodulated carrier <input type="checkbox"/> Amplitude modulation <input checked="" type="checkbox"/> Frequency modulation
	Antenna <input type="checkbox"/> Permanent external antenna and integral or dedicated antenna <input type="checkbox"/> Integral Antenna <input type="checkbox"/> Dedicated antenna <input checked="" type="checkbox"/> Permanent antenna plug Antenna gain (dBi)
	Carrier output power Different carrier power settings: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Frequency Operating Frequency 146 – 174 MHz

	<p>Power supply</p> <p><input checked="" type="checkbox"/> Mains voltage Voltage: 230 V Frequency: 50 Hz</p> <p><input type="checkbox"/> Battery operated <input type="checkbox"/> Regulated lead-acid battery <input type="checkbox"/> Others, Power supply</p> <p>=> Nominal voltage V_{nor}: - V Minimal voltage V_{min}: - V Maximal voltage V_{max}: - V</p>
	<p>Type of equipment Private mobil radio</p> <p>Equipment classification</p> <p><input checked="" type="checkbox"/> Fixed use <input type="checkbox"/> Portable use <input type="checkbox"/> Vehicle use</p> <p>Independent Operation Modes</p> <p>Transmitter: <input checked="" type="checkbox"/> Transmitting <input checked="" type="checkbox"/> Standby</p>
Others	-

Submitted Documents .

Declaration of conformity.

Remarks .

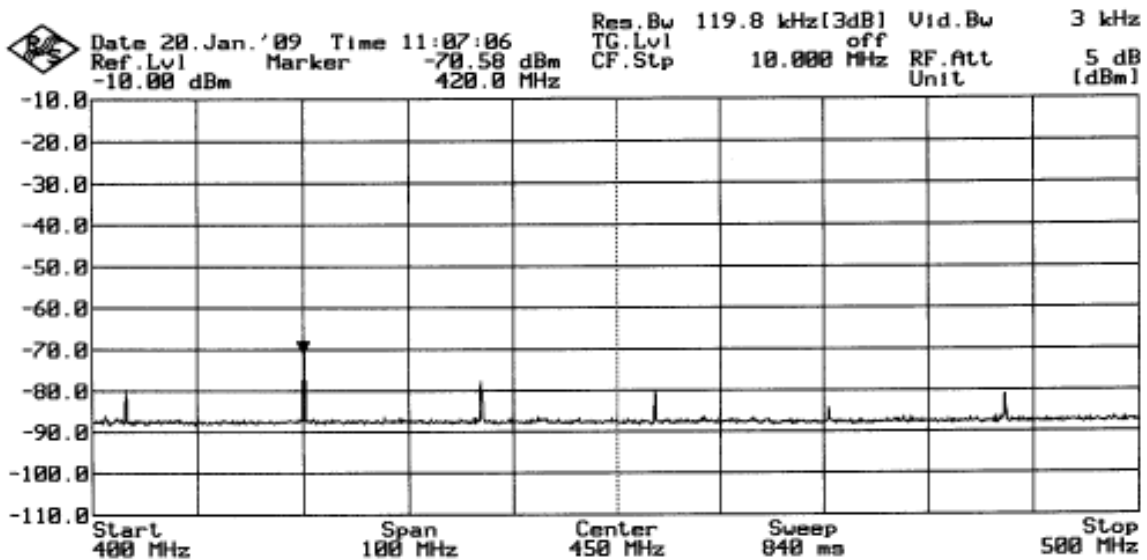
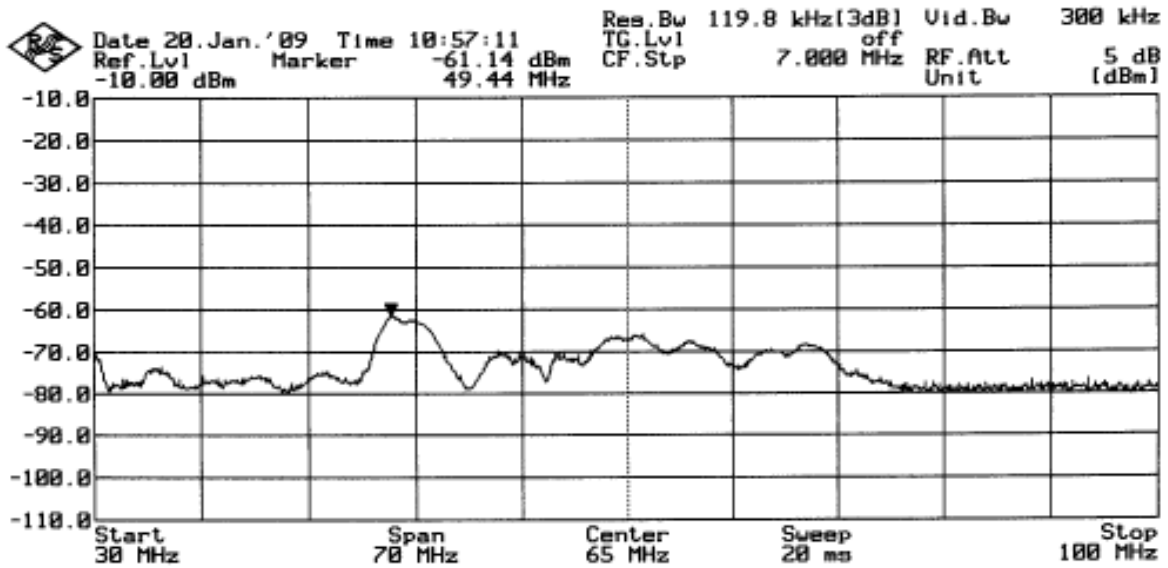
All other test was notified by MIKES BAPT Product Service GmbH (0168).

Results EN 300 086-02 V1.1.1 - Essential radio test suites

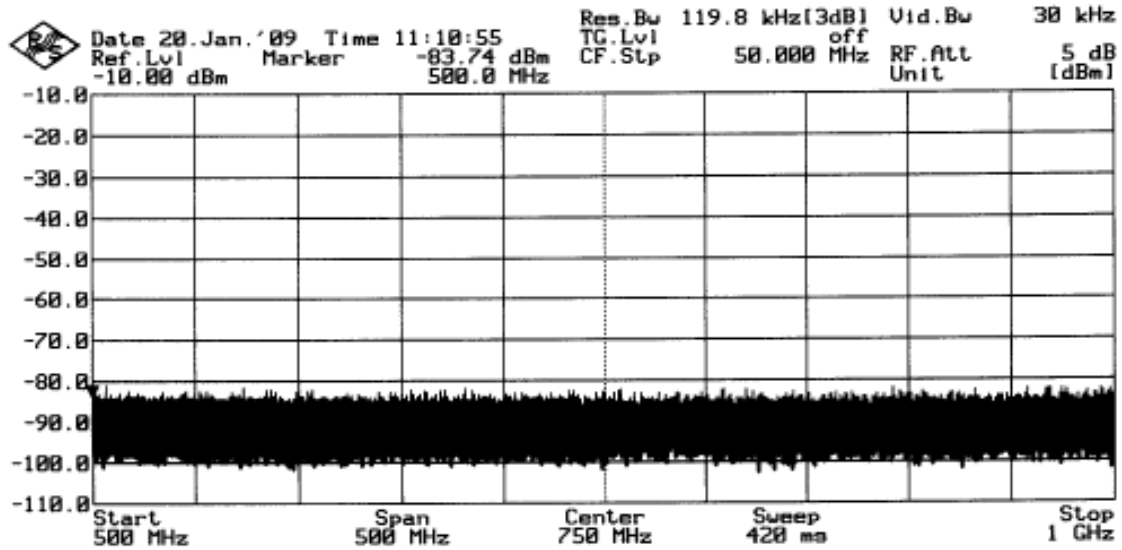
Transmitter .

EN 300 086-02 – 4.2.6 Spurious emissions					Pass
Measurement uncertainty: ±1.2 dB EUT Operating					
Frequency range (MHz)	Spurious Frequency (MHz)	Power P_{PK} (dBm) BW: 120kHz	Power P_{PK} (dBm/nW) BW: 1MHz	Limit (dBm/nW)	Remark
0.009 – 1 000	49,4	-46	N.A.	-36	None
	66,0	-51	N.A.	-36	
	77,1	-60	N.A.	-36	
	420	-53,5	N.A.	-36	
	436,8	-77,6	N.A.	-36	
				N.A.	
			N.A.	-36	
1 000 – 4 000	no peak found	N.A.	---	-30	

Spurious emissions



The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This testreport may not be published or duplicated in part without permission of the testing body. This testreport by itself does not constitute authorization for the use of any test mark.



The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This testreport may not be published or duplicated in part without permission of the testing body. This testreport by itself does not constitute authorization for the use of any test mark.



Setup



BTS 2010

End of Testreport

Prüfbericht - Nr.: 21139959_002 <i>Test Report No.:</i>		Seite 1 von 11 <i>Page 1 of 11</i>
Auftraggeber: <i>Client:</i>	KaiTec D-63768 Hösbach Siemensstraße 10	
Gegenstand der Prüfung: External Ref Oszillator <i>Test item:</i>		
Bezeichnung: <i>Identification:</i>	BTS 2010 with TKR 851	Serien-Nr.: --- <i>Serial No.:</i>
Wareneingangs-Nr.: <i>Receipt No.:</i>	---	Eingangsdatum: --- <i>Date of receipt:</i>
Prüfart: <i>Testing location:</i>	TÜV Rheinland Product Safety GmbH, Köln, Germany	
Prüfgrundlage: <i>Test specification:</i>	EN 300 086-02 V1.1.1 Spot test	
Prüfresultat: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannten Prüfgrundlagen <i>The test item passed the test specification(s)</i>	
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland Product Safety GmbH, Köln, Germany	
geprüft / tested by:	kontrolliert / reviewed by:	
2009-01-28 O.Schaefer, SV	2009-01-28 K. Jauernik, SV	
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other Aspects: None		
Anhang / Annex: None		
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>		

Verwendete Messgeräte sind in der linken Spalte mit einem Kreuz **x** markiert
[used instruments are marked with an **x** in the left column]

Störaussendung [emission]		Type	Hersteller	Inv. – Nr.	kal. bis
Test / Gerät [test / device]			[manufacturer]	/Ser. - Nr.	[cal. till]
Elektr. Funkstörfeldstärke 2					
[radiated disturbance SAC]					
	EMI Receiver 25-1000MHz	VUMA 1521 A	Schwarzbeck	14200621	2009-01
	EMI Receiver 25-1000MHz	VUMA 1524	Schwarzbeck	14200418	2009-03
	EMI Receiver < 2,75GHz	ESCS 30	Rohde & Schwarz	14201360	2010-01
	EMI Receiver < 26,5GHz	ESU 26	Rohde & Schwarz	30401912	2009-11
x	EMI Receiver < 26,5GHz	ESMI	Rohde & Schwarz	14200550	2010-10
x	BiConiLog-Ant 26-3000MHz	3142B	EMCO	14201363	2011-06
	Horn-Ant. 0,8-5GHz	BBHA 9120A	Schwarzbeck	30402211	2010-09
x	Horn-Ant 1-10GHz	BBHA 9120B 202	Schwarzbeck	14200694	2010-02
	Horn-Ant 1-10GHz	BBHA 9120B 204	Schwarzbeck	14200695	2009-10
	Horn-Ant 2-18GHz	BBHA 9120C 376	Schwarzbeck	30401857	2009-07
	Horn-Ant 2-18GHz	BBHA 9120C 377	Schwarzbeck	30401858	2009-03
	Horn-Ant 15-26,5GHz	BBHA 9170 311	Schwarzbeck	30401855	2009-03
	Horn-Ant 15-26,5GHz	BBHA 9170 312	Schwarzbeck	30401856	2009-03
x	Semi Anechoic Chamber SAC		ETS	14201372	2010-06
Weitere Messgeräte		Type	Hersteller	Inv. – Nr.	kal. bis
[other testequipment]			[manufacturer]	/Ser. - Nr.	[cal. till]
	Digital-Multimeter	Metra Hit 16	ABB	14200346	2010-06
x	Digital-Multimeter	Metra Hit 23S	Gossen	14200699	2009-09
	Oszilloskop [oscilloscope]	TDS 3052B	Tektronix	30401734	2010-02
x	Temperature / Humidity	615	testo	30401660	2009-08

Table of Contents

	Page
Cover Page	1
Table of Contents	2
Product Information.....	4
Manufacturers declarations.....	4
Submitted Documents.....	5
Remarks.....	5
Results EN 300 086-02 V1.1.1 - Essential radio test suites	6
Transmitter6
EN 300 086-02 – 4.2.6 Spurious emissions	Pass 6

Product Information

Manufacturers declarations

General	Declared temperature range T _{nor} : 23 °C T _{min} : - T _{max} : -
	Systems employs transponders <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Primary function <input type="checkbox"/> Data, message transfer <input type="checkbox"/> Audio transfer <input checked="" type="checkbox"/> Others, transfer of speech
Transmitter	Occupation bandwidth <input type="checkbox"/> Wideband equipment (frequency band > 25 kHz) <input checked="" type="checkbox"/> Narrow band equipment <input type="checkbox"/> not capable to produce an unmodulated carrier <input checked="" type="checkbox"/> capable to produce an unmodulated carrier <input type="checkbox"/> Amplitude modulation <input checked="" type="checkbox"/> Frequency modulation
	Antenna <input type="checkbox"/> Permanent external antenna and integral or dedicated antenna <input type="checkbox"/> Integral Antenna <input type="checkbox"/> Dedicated antenna <input checked="" type="checkbox"/> Permanent antenna plug Antenna gain (dBi)
	Carrier output power Different carrier power settings: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Frequency Operating Frequency 440 - 470 MHz

	<p>Power supply</p> <p><input checked="" type="checkbox"/> Mains voltage Voltage: 230 V Frequency: 50 Hz</p> <p><input type="checkbox"/> Battery operated <input type="checkbox"/> Regulated lead-acid battery <input type="checkbox"/> Others, Power supply</p> <p>=> Nominal voltage V_{nor}: - V Minimal voltage V_{min}: - V Maximal voltage V_{max}: - V</p>
	<p>Type of equipment Private mobil radio</p> <p>Equipment classification</p> <p><input checked="" type="checkbox"/> Fixed use <input type="checkbox"/> Portable use <input type="checkbox"/> Vehicle use</p> <p>Independent Operation Modes</p> <p>Transmitter: <input checked="" type="checkbox"/> Transmitting <input checked="" type="checkbox"/> Standby</p>
Others	-

Submitted Documents .

Declaration of conformity.

Remarks .

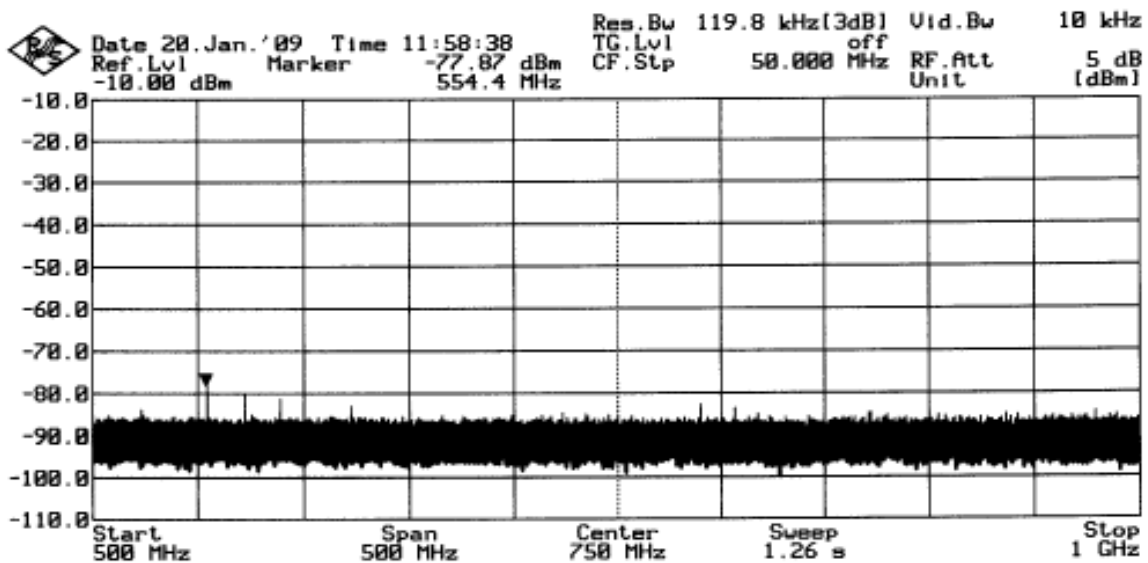
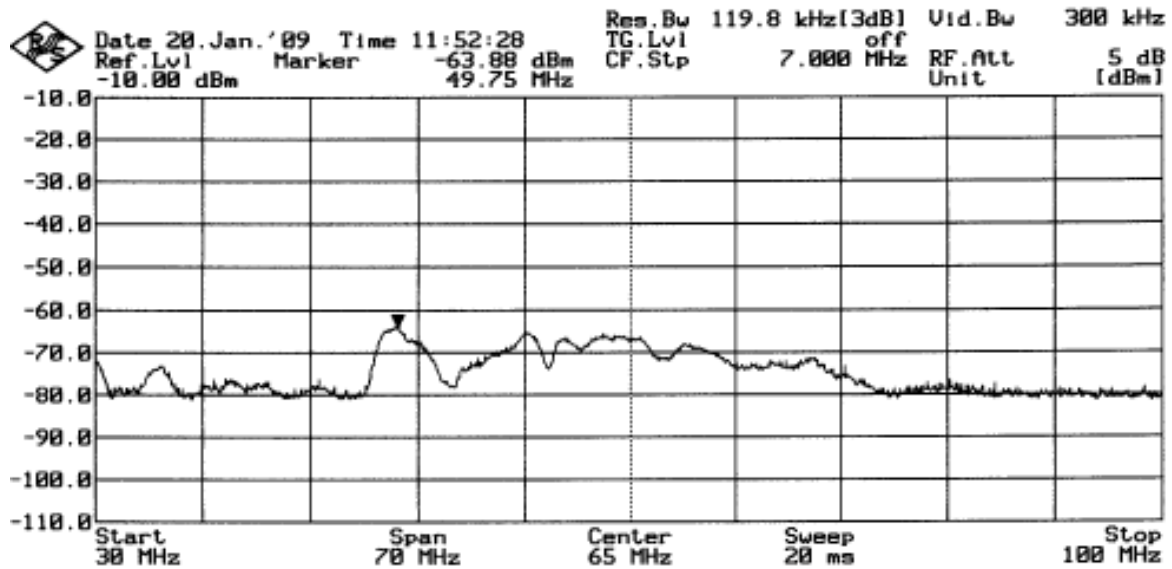
All other test was notified by MIKES BAPT Product Service GmbH (0168).

Results EN 300 086-02 V1.1.1 - Essential radio test suites

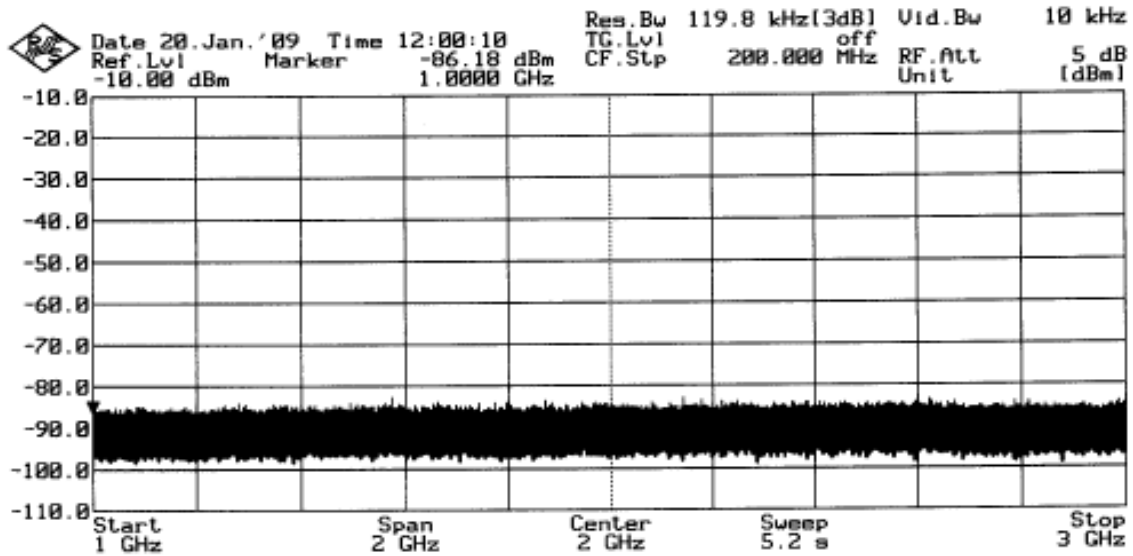
Transmitter .

EN 300 086-02 – 4.2.6 Spurious emissions					Pass
Measurement uncertainty: ±1.2 dB EUT Operating					
Frequency range (MHz)	Spurious Frequency (MHz)	Power P_{PK} (dBm) BW: 120kHz	Power P_{PK} (dBm/nW) BW: 1MHz	Limit (dBm/nW)	Remark
0.009 – 1 000	453,77	-59	N.A.	-36	None
	487,33	-61	N.A.	-36	
	554,4	-54	N.A.	-36	
	575,2	-60	N.A.	-36	
	588,3	-60	N.A.	-36	
	789,9	-54	N.A.	-36	
1 000 – 4 000	no peak found	N.A.	---	-30	

Spurious emissions



The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This testreport may not be published or duplicated in part without permission of the testing body. This testreport by itself does not constitute authorization for the use of any test mark.



The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This testreport may not be published or duplicated in part without permission of the testing body. This testreport by itself does not constitute authorization for the use of any test mark.



Setup



BTS 2010

End of Testreport