

FCC 47 CFR PART 22H and 24E**Test Report**

Product Type : Wireless module
Applicant : Telit Communications S.p.A.
Address : Viale Stazione di Prosecco 5/b, Trieste, 34010, Italy
Trade Name : Telit
Model Number : HE920-NA
Test Specification : FCC 47 CFR PART 22H: Oct, 2012
FCC 47 CFR PART 24E: Oct, 2012
CANADA RSS-132 ISSUE 3: Jan., 2013
CANADA RSS-133 ISSUE 6: Jan., 2013
Canada RSS-Gen ISSUE 3: Dec., 2010
ANSI/TIA-603-C-2004
Application Purpose : Original
Receive Date : Nov. 12, 2012
Test Period : Nov. 20, 2012 ~ Mar. 13, 2013
Issue Date : Apr. 09, 2013

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Mar. 18, 2013	Initial Issue	
01	Apr. 09, 2013	Revised IC number.	Joyce Liao

Verification of Compliance

Issued Date: 04/09/2013

Product Type : Wireless module

Applicant : Telit Communications S.p.A.

Address : Viale Stazione di Prosecco 5/b, Trieste, 34010, Italy

Trade Name : Telit

Model Number : HE920-NA

FCC ID : RI7HE920NA

IC : 5131A-HE920NA

EUT Rated Voltage : DC 3.8V

Test Voltage : DC 3.8V

Applicable Standard : FCC 47 CFR PART 22H: Oct, 2012
FCC 47 CFR PART 24E: Oct, 2012
CANADA RSS-132 ISSUE 3: Jan. 2013
CANADA RSS-133 ISSUE 6: Jan. 2013
Canada RSS-Gen ISSUE 3: Dec., 2010
ANSI/TIA-603-C-2004

Application Purpose : Original

Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.
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<http://www.atl-lab.com.tw/e-index.htm>



The above equipment was tested by A Test Lab Techno Corp. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2009 and the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 22H, Part 24E.

The test results of this report relate only to the tested sample identified in this report.

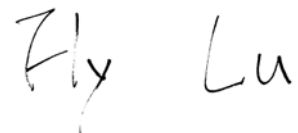
Approved By

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Reviewed By

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TABLE OF CONTENTS

1	General Information	6
1.1.	EUT Description	6
1.2.	Mode of Operation.....	7
1.3.	EUT Exercise Software	7
1.4.	Configuration of Test System Details	7
1.5.	Test Site Environment	8
1.6.	Summary of Test Result	8
2	RF Output Power Test	9
2.1.	Limit	9
2.2.	Test Instruments	9
2.3.	Test Setup.....	9
2.4.	Test Procedure	9
2.5.	Uncertainty	9
2.6.	Test Result.....	10
3	Effective Radiated Power / Equivalent Isotropic Radiated Power Test.....	14
3.1.	Limit	14
3.2.	Test Instruments	14
3.3.	Setup	14
3.4.	Test Procedure	16
3.5.	Uncertainty	16
3.6.	Test Result.....	17
4	Occupied Bandwidth Test.....	19
4.1.	Limit	19
4.2.	Test Instruments	19
4.3.	Setup	19
4.4.	Test Procedure	20
4.5.	Uncertainty	20
4.6.	Test Result.....	20
4.7.	Test Graphs	21
5	Band Edge Test	27
5.1.	Limit	27
5.2.	Test Instruments	27
5.3.	Setup	27
5.4.	Test Procedure	28
5.5.	Uncertainty	28
5.6.	Test Result.....	28
5.7.	Test Graphs	29

6	Conducted Spurious Emission Test	33
6.1.	Limit	33
6.2.	Test Instruments	33
6.3.	Setup	33
6.4.	Test Procedure	34
6.5.	Uncertainty	34
6.6.	Test Result.....	34
7	Field Strength of Spurious Radiation Test.....	89
7.1.	Limit	89
7.2.	Test Instruments	89
7.3.	Setup	90
7.4.	Test Procedure	90
7.5.	Uncertainty	91
7.6.	Test Result.....	92
8	Frequency Stability (Temperature & Voltage Variation) Test.....	105
8.1.	Limit	105
8.2.	Test Instruments	105
8.3.	Setup	105
8.4.	Test Procedure	106
8.5.	Uncertainty	107
8.6.	Test Result.....	108

1 General Information

1.1. EUT Description

Applicant		Telit Communications S.p.A.			
Applicant Address		Viale Stazione di Prosecco 5/b, Trieste, 34010, Italy			
Manufacturer		Telit Communications S.p.A.			
Manufacturer Address		Via Stazione di Prosecco, 5/B 34010 Sgonico Italy			
Product Type		Wireless module			
Trade Name		Telit			
Model Number		HE920-NA			
FCC ID		RI7HE920NA			
IC		5131A-HE920NA			
Mode	GSM/GPRS/ EGPRS/ DTM	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
		850	824.2 ~ 848.8	869.2 ~ 893.8	GMSK/8PSK
		1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8	GMSK/8PSK
	WCDMA/ HSDPA/ HSUPA	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
		II	1852.4 ~ 1907.6	1932.4 ~ 1987.6	QPSK
		V	826.4 ~ 846.6	871.4 ~ 891.6	QPSK
Channel Control		Auto			
Type of Antenna		Dipole Antenan			
Antenna Gain (dBi)		GSM/GPRS/EGPRS/DTM 850 : 2.0 dBi GSM/GPRS/EGPRS/DTM 1900 : 2.0 dBi WCDMA/ HSDPA/ HSUPA Band II : 2.0 dBi WCDMA/ HSDPA/ HSUPA Band V : 2.0 dBi			
Max. RF Output power		GSM/GPRS/DTM 850 : 33.02 dBm / 2.004 W EGPRS/DTM 850 : 29.91 dBm / 0.979 W GSM/GPRS/DTM 1900 : 29.18 dBm / 0.828 W EGPRS/DTM 1900 : 28.41 dBm / 0.693 W WCDMA/ HSDPA/ HSUPA Band II : 26.75 dBm / 0.473 W WCDMA/ HSDPA/ HSUPA Band V : 27.48 dBm / 0.560 W			
Max. ERP/EIRP		GSM/GPRS/DTM 850 : 30.58 dBm / 1.143 W EGPRS/DTM 850 : 29.99 dBm / 0.998 W GSM/GPRS/DTM 1900 : 27.38 dBm / 0.547 W EGPRS/DTM 1900 : 26.14 dBm / 0.411 W WCDMA/ HSDPA/ HSUPA Band II : 25.38 dBm / 0.345 W WCDMA/ HSDPA/ HSUPA Band V : 26.85 dBm / 0.484 W			
Emission Designator		GSM/GPRS/DTM 850 : 248KGXW EGPRS/DTM 850 : 244KG7W GSM/GPRS/DTM 1900 : 246KGXW EGPRS/DTM 1900 : 248KG7W WCDMA/ HSDPA/ HSUPA Band II : 4M16F9W WCDMA/ HSDPA/ HSUPA Band V : 4M14F9W			

1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

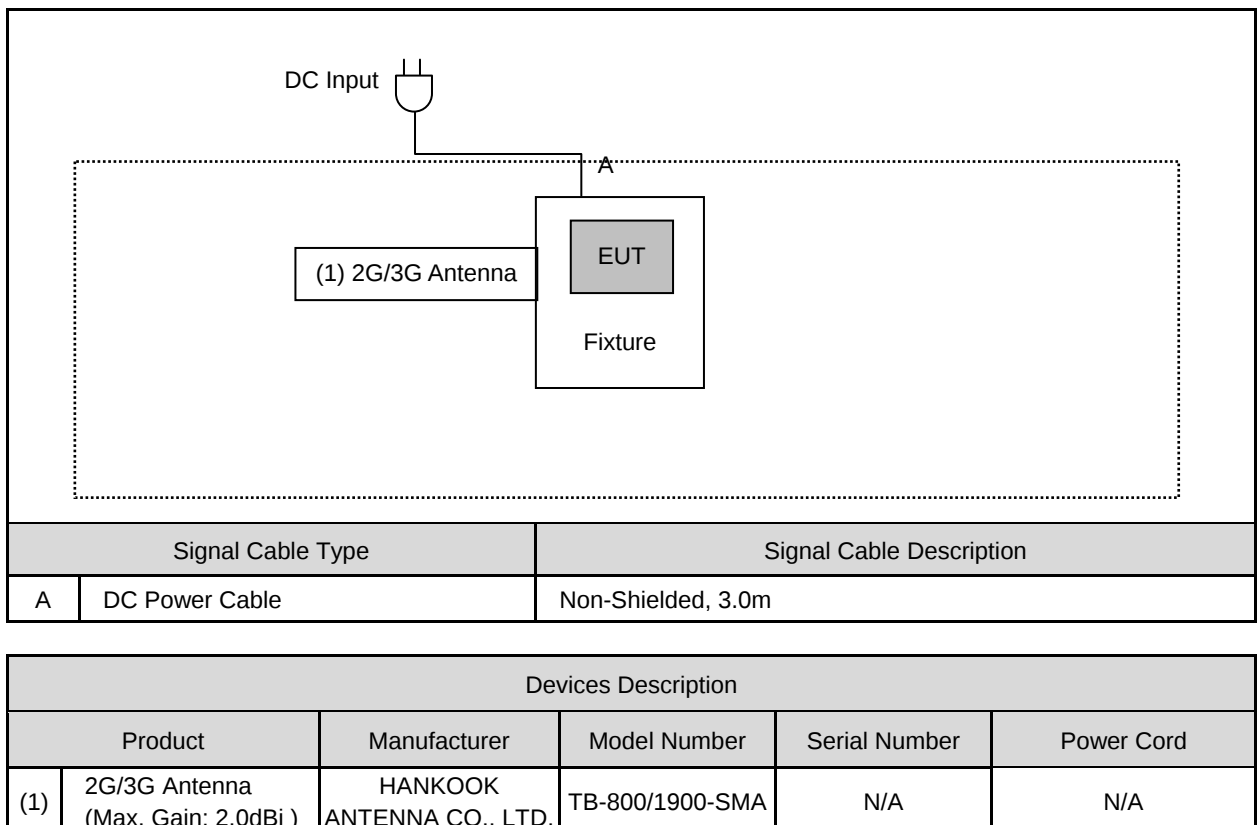
Test Mode
Mode 1: GSM 850 Link Mode
Mode 2: GSM 1900 Link Mode
Mode 3: EGPRS 850 Link Mode
Mode 4: EGPRS 1900 Link Mode
Mode 5: WCDMA Band II Link Mode
Mode 6: WCDMA Band V Link Mode
Mode 7: Receive Link Mode

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

1.3. EUT Exercise Software

1	Setup the EUT and Base Station (CMU200) as shown on 1.4.
2	Turn on the power of all equipment.

1.4. Configuration of Test System Details



1.5. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	23
Humidity (%RH)	25-75	55.2
Barometric pressure (mbar)	860-1060	950

1.6. Summary of Test Result

Description	FCC Rule	IC Rule	Limit	Result
Conducted Output Power	§2.1046	N/A	N/A	Pass
Effective Radiated Power	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	< 7 Watts for FCC (<6.3 Watts for IC)	Pass
Equivalent Isotropic Radiated Power	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	< 2 Watts	Pass
Occupied Bandwidth	§2.1049 §22.917(a) §24.238(a)	RSS-Gen (4.6.1)	N/A	Pass
Band Edge Measurement	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1)RSS-133 (6.5.1)	< 43+10log ₁₀ (P[Watts])	Pass
Conducted Spurious Emission	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	< 43+10log ₁₀ (P[Watts])	Pass
Field Strength of Spurious Radiation	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1) RSS-Gen (4.10)	< 43+10log ₁₀ (P[Watts])	Pass
Frequency Stability for Temperature & Voltage	§2.1055 §22.355 §24.235	RSS-132(4.3) RSS-133(6.3)	< 2.5 ppm	Pass

2 RF Output Power Test

2.1. Limit

N/A

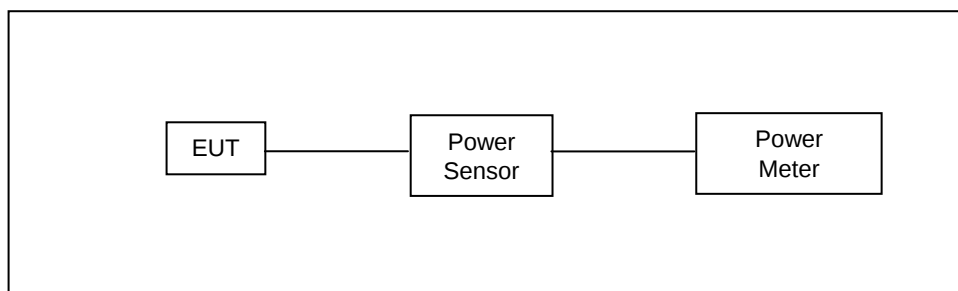
2.2. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2012	(2)
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	12/15/2011	(2)
Wideband Power Meter	Agilent	N1921A	MY45241957	12/15/2011	(2)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

2.3. Test Setup



2.4. Test Procedure

The measurement is made according to ANSI/TIA-603-C-2004 as follows:

1. The transmitter output was connected to power meter and base station through Power Divider.
2. Set base station for EUT at GSM 850: PCL=5 and PCS 1900: PCL=0.
3. Set base station for EUT at WCDMA Band V and WCDMA Band II, power level was set to maximum.
4. Select lowest, middle, and highest channels for each band.

2.5. Uncertainty

The measurement uncertainty is defined as for RF output power measurement is 1.2 dB.

2.6. Test Result

Model Number	HE920-NA						
Test Item	RF Output Power						
Date of Test	01/29/2013			Test Site		TE05	
Bands	Modulation Type	Data Rate	Frequency (MHz)	Burst Average Power		Peak Power	
				(dBm)	(W)	(dBm)	(W)
GSM 850	GMSK	-----	824.2	32.66	1.845	32.91	1.954
			836.6	32.83	1.919	33.02	2.004
			848.8	32.75	1.884	32.96	1.977
GRRS 850	GMSK	4Down1Up (Duty Factor 1/8)	824.2	32.61	1.824	32.86	1.932
			836.6	32.71	1.866	32.96	1.977
			848.8	32.66	1.845	32.89	1.945
		3Down2Up (Duty Factor 2/8)	824.2	32.37	1.726	32.61	1.824
			836.6	32.45	1.758	32.63	1.832
			848.8	32.42	1.746	32.65	1.841
		2Down3Up (Duty Factor 1/8)	824.2	31.06	1.276	31.22	1.324
			836.6	31.16	1.306	31.32	1.355
			848.8	31.09	1.285	31.25	1.334
		1Down4Up (Duty Factor 2/8)	824.2	29.57	0.906	29.71	0.935
			836.6	29.63	0.918	29.81	0.957
			848.8	29.61	0.914	29.79	0.953
EGPRS 850	8PSK	4Down1Up (Duty Factor 1/8)	824.2	26.71	0.469	29.84	0.964
			836.6	26.78	0.476	29.91	0.979
			848.8	26.74	0.472	29.88	0.973
		3Down2Up (Duty Factor 2/8)	824.2	26.58	0.455	29.76	0.946
			836.6	26.65	0.462	29.83	0.962
			848.8	26.64	0.461	29.81	0.957
		2Down3Up (Duty Factor 1/8)	824.2	25.52	0.356	28.63	0.729
			836.6	25.59	0.362	28.66	0.735
			848.8	25.61	0.364	28.69	0.740
		1Down4Up (Duty Factor 2/8)	824.2	24.42	0.277	27.53	0.566
			836.6	24.45	0.279	27.56	0.570
			848.8	24.47	0.280	27.59	0.574
DTM 850	GMSK	GSM+GPRS 2Down3Up (Duty Factor 3/8)	824.2	31.02	1.265	31.18	1.312
			836.6	31.11	1.291	31.25	1.334
			848.8	31.06	1.276	31.21	1.321
	GMSK + 8PSK	GSM+EGPRS 2Down3Up (Duty Factor 3/8)	824.2	25.26	0.336	31.16	1.306
			836.6	25.33	0.341	31.21	1.321
			848.8	25.36	0.344	31.33	1.358

Note: The peak power testing result was used peak detector.

Model Number	HE920-NA						
Test Item	RF Output Power						
Date of Test	01/29/2013			Test Site		TE05	
Bands	Modulation Type	Data Rate	Frequency (MHz)	Burst Average Power		Peak Power	
				(dBm)	(W)	(dBm)	(W)
GSM 1900	GMSK	-----	1850.20	29.03	0.800	29.18	0.828
			1880.00	28.94	0.783	29.03	0.800
			1909.80	28.59	0.723	28.75	0.750
GPRS 1900	GMSK	4Down1Up (Duty Factor 1/8)	1850.20	28.91	0.778	29.06	0.805
			1880.00	28.81	0.760	28.96	0.787
			1909.80	28.45	0.700	28.63	0.729
		3Down2Up (Duty Factor 2/8)	1850.20	28.73	0.746	28.86	0.769
			1880.00	28.61	0.726	28.76	0.752
			1909.80	28.31	0.678	28.49	0.706
		2Down3Up (Duty Factor 1/8)	1850.20	27.42	0.552	27.56	0.570
			1880.00	27.27	0.533	27.43	0.553
			1909.80	27.28	0.535	27.46	0.557
		1Down4Up (Duty Factor 2/8)	1850.20	26.24	0.421	26.39	0.436
			1880.00	26.09	0.406	26.21	0.418
			1909.80	26.11	0.408	26.26	0.423
EGPRS 1900	8PSK	4Down1Up (Duty Factor 1/8)	1850.20	25.16	0.328	28.41	0.693
			1880.00	24.96	0.313	28.11	0.647
			1909.80	24.86	0.306	28.09	0.644
		3Down2Up (Duty Factor 2/8)	1850.20	25.03	0.318	28.31	0.678
			1880.00	24.81	0.303	28.06	0.640
			1909.80	24.76	0.299	28.03	0.635
		2Down3Up (Duty Factor 1/8)	1850.20	24.07	0.255	27.21	0.526
			1880.00	23.81	0.240	27.06	0.508
			1909.80	23.78	0.239	26.99	0.500
		1Down4Up (Duty Factor 2/8)	1850.20	23.02	0.200	26.11	0.408
			1880.00	22.72	0.187	25.96	0.394
			1909.80	22.71	0.187	25.93	0.392
DTM 1900	GMSK	GSM+GPRS 2Down3Up (Duty Factor 3/8)	1850.20	27.26	0.532	27.48	0.560
			1880.00	27.13	0.516	27.31	0.538
			1909.80	27.19	0.524	27.42	0.552
	GMSK + 8PSK	GSM+EGPRS 2Down3Up (Duty Factor 3/8)	1850.20	23.96	0.249	27.56	0.570
			1880.00	23.82	0.241	27.43	0.553
			1909.80	23.74	0.237	27.36	0.545

Note: The peak power testing result was used peak detector.

Model Number	HE920-NA						
Test Item	RF Output Power						
Date of Test	01/29/2013			Test Site		TE05	
Bands	Modulation Type	Sub-Test	Frequency (MHz)	Burst Average Power		Peak Power	
				(dBm)	(W)	(dBm)	(W)
WCDMA Band II	QPSK	-----	1852.4	23.32	0.215	26.66	0.463
			1880.0	23.21	0.209	26.61	0.458
			1907.6	23.47	0.222	26.75	0.473
HSDPA Band II	QPSK	1	1852.4	22.27	0.169	25.42	0.348
			1880.0	22.14	0.164	25.29	0.338
			1907.6	22.38	0.173	25.53	0.357
		2	1852.4	22.23	0.167	25.38	0.345
			1880.0	22.10	0.162	25.25	0.335
			1907.6	22.33	0.171	25.48	0.353
		3	1852.4	21.74	0.149	24.89	0.308
			1880.0	21.61	0.145	24.76	0.299
			1907.6	21.86	0.153	25.01	0.317
		4	1852.4	21.71	0.148	24.86	0.306
			1880.0	21.57	0.144	24.72	0.296
			1907.6	21.82	0.152	24.97	0.314
HSUPA Band II	QPSK	1	1852.4	21.99	0.158	25.12	0.325
			1880.0	21.59	0.144	24.72	0.296
			1907.6	22.16	0.164	25.29	0.338
		2	1852.4	19.98	0.100	23.11	0.205
			1880.0	19.62	0.092	22.75	0.188
			1907.6	20.13	0.103	23.26	0.212
		3	1852.4	21.07	0.128	24.20	0.263
			1880.0	20.59	0.115	23.72	0.236
			1907.6	21.11	0.129	24.24	0.265
		4	1852.4	19.93	0.098	23.06	0.202
			1880.0	19.61	0.091	22.74	0.188
			1907.6	20.25	0.106	23.38	0.218
		5	1852.4	21.98	0.158	25.11	0.324
			1880.0	21.59	0.144	24.72	0.296
			1907.6	22.15	0.164	25.28	0.337

Note: The peak power testing result was used peak detector.

Model Number	HE920-NA						
Test Item	RF Output Power						
Date of Test	01/29/2013			Test Site		TE05	
Bands	Modulation Type	Sub-Test	Frequency (MHz)	Burst Average Power		Peak Power	
				(dBm)	(W)	(dBm)	(W)
WCDMA Band V	QPSK	-----	826.4	23.68	0.233	27.41	0.551
			836.6	23.70	0.234	27.48	0.560
			846.6	23.62	0.230	27.19	0.524
HSDPA Band V	QPSK	1	826.4	22.36	0.172	25.47	0.352
			836.6	22.84	0.192	25.95	0.394
			846.6	22.20	0.166	25.31	0.340
		2	826.4	22.35	0.172	25.46	0.352
			836.6	22.82	0.191	25.93	0.392
			846.6	22.20	0.166	25.31	0.340
		3	826.4	21.87	0.154	24.98	0.315
			836.6	22.36	0.172	25.47	0.352
			846.6	21.72	0.149	24.83	0.304
		4	826.4	21.86	0.153	24.97	0.314
			836.6	22.32	0.171	25.43	0.349
			846.6	21.71	0.148	24.82	0.303
HSUPA Band V	QPSK	1	826.4	22.29	0.169	25.40	0.347
			836.6	22.31	0.170	25.42	0.348
			846.6	21.68	0.147	24.79	0.301
		2	826.4	20.28	0.107	23.39	0.218
			836.6	20.29	0.107	23.40	0.219
			846.6	19.64	0.092	22.75	0.188
		3	826.4	21.27	0.134	24.38	0.274
			836.6	21.27	0.134	24.38	0.274
			846.6	20.65	0.116	23.76	0.238
		4	826.4	20.28	0.107	23.39	0.218
			836.6	20.30	0.107	23.41	0.219
			846.6	19.64	0.092	22.75	0.188
		5	826.4	22.24	0.167	25.35	0.343
			836.6	22.28	0.169	25.39	0.346
			846.6	21.63	0.146	24.74	0.298

Note: The peak power testing result was used peak detector.

3 Effective Radiated Power / Equivalent Isotropic Radiated Power Test

3.1. Limit

For FCC Part 22.913(a)(2): The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(b): The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

3.2. Test Instruments

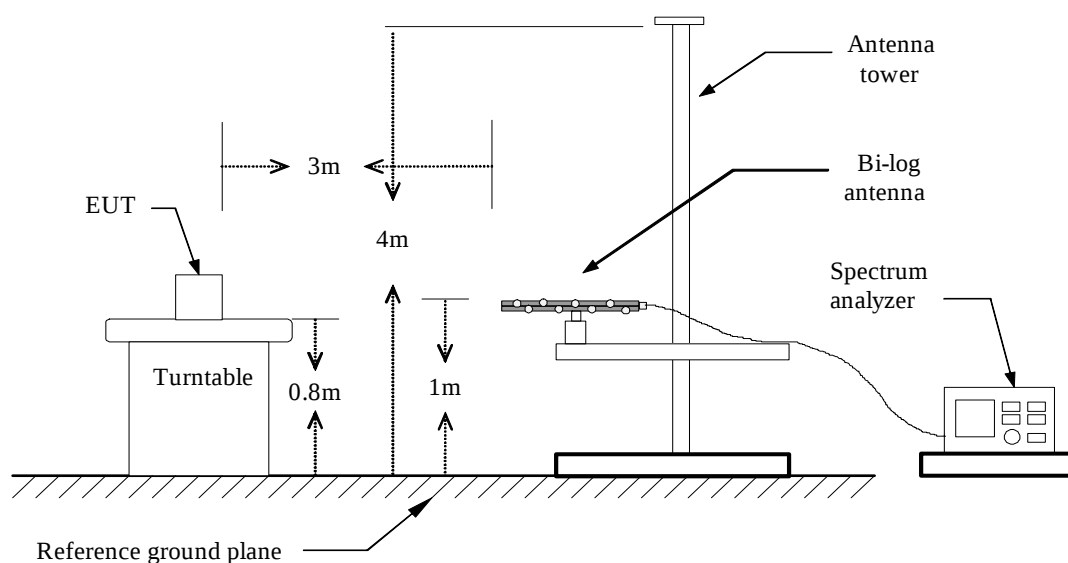
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/16/2012	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/16/2012	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/22/2012	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/22/2012	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/29/2012	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/15/2012	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/21/2012	(1)
Test Site	ATL	TE01	888001	12/20/2011	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

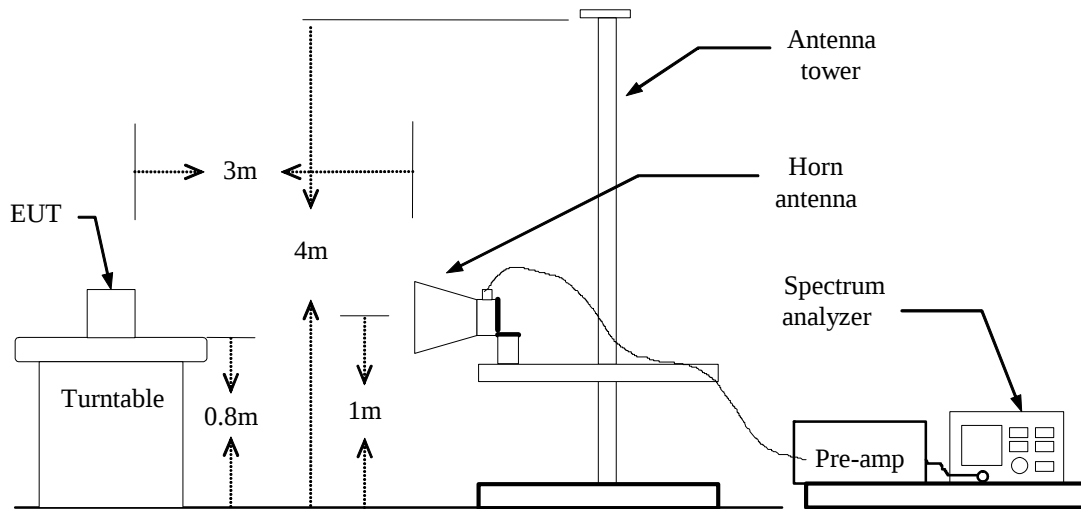
Note: N.C.R. = No Calibration Request.

3.3. Setup

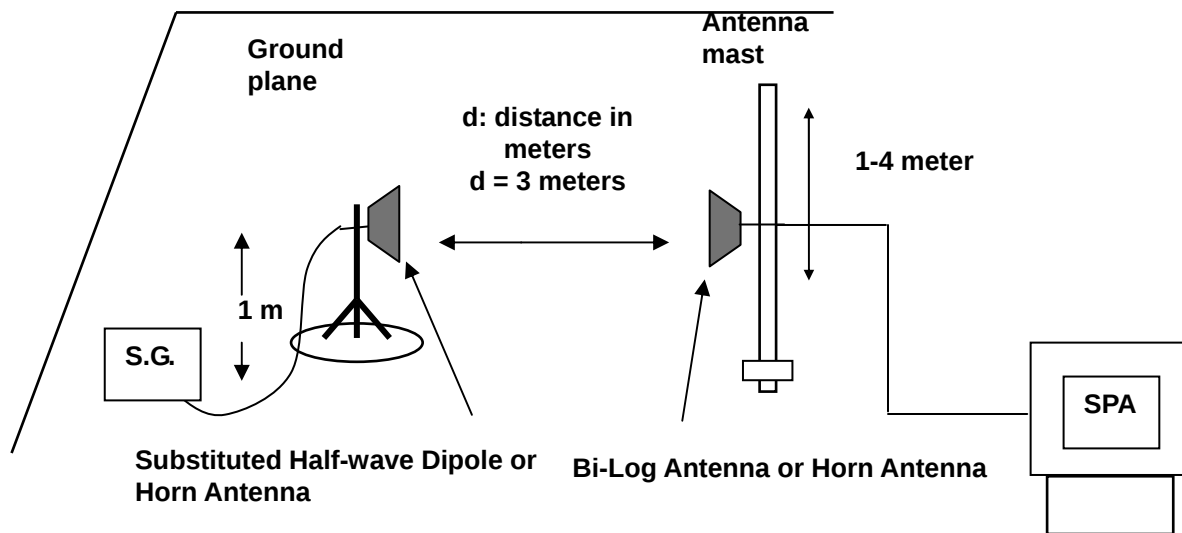
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



3.4. Test Procedure

The measurement is made according to ANSI/TIA-603-C-2004 as follows:

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

3.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is ± 3.072 dB.

3.6. Test Result

Model Number	HE920-NA							
Test Item	ERP/EIRP							
Date of Test	01/30/2013					Test Site	TE01	
Bands	Modulation Type	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	ERP		Limit
						(dBm)	(W)	
GSM 850	GMSK	824.2	H	18.12	11.29	29.41	0.873	< 7W
			V	19.28	11.30	30.58	1.143	< 7W
		836.6	H	18.03	11.34	29.37	0.865	< 7W
			V	18.54	11.34	29.88	0.973	< 7W
		848.8	H	18.06	11.47	29.53	0.897	< 7W
			V	18.74	11.47	30.21	1.050	< 7W
EGPRS 850	8PSK	824.2	H	18.30	11.29	29.59	0.910	< 7W
			V	18.70	11.29	29.99	0.998	< 7W
		836.6	H	17.80	11.34	29.14	0.820	< 7W
			V	18.39	11.34	29.73	0.940	< 7W
		848.8	H	17.56	11.46	29.02	0.798	< 7W
			V	18.14	11.47	29.61	0.914	< 7W

Model Number	HE920-NA							
Test Item	ERP/EIRP							
Date of Test	01/30/2013					Test Site	TE01	
Bands	Modulation Type	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	EIRP		Limit
						(dBm)	(W)	
GSM 1900	GMSK	1850.20	H	15.13	11.39	26.52	0.449	< 2W
			V	15.99	11.39	27.38	0.547	< 2W
		1880.00	H	14.49	11.64	26.13	0.410	< 2W
			V	15.17	11.65	26.82	0.481	< 2W
		1909.80	H	14.07	11.91	25.98	0.396	< 2W
			V	14.97	11.91	26.88	0.488	< 2W
EGPRS 1900	8PSK	1850.20	H	13.77	11.39	25.16	0.328	< 2W
			V	14.31	11.39	25.70	0.372	< 2W
		1880.00	H	12.47	11.64	24.11	0.258	< 2W
			V	13.73	11.65	25.38	0.345	< 2W
		1909.80	H	13.80	11.91	25.71	0.372	< 2W
			V	14.23	11.91	26.14	0.411	< 2W

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

Model Number	HE920-NA							
Test Item	ERP/EIRP							
Date of Test	01/30/2013					Test Site	TE01	
Bands	Modulation Type	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	EIRP		Limit
						(dBm)	(W)	
WCDMA Band II	QPSK	1852.4	H	13.16	11.42	24.58	0.287	< 2W
			V	13.96	11.42	25.38	0.345	< 2W
		1880.0	H	12.66	11.65	24.31	0.270	< 2W
			V	13.25	11.63	24.88	0.308	< 2W
		1907.6	H	11.87	11.87	23.74	0.237	< 2W
			V	12.77	11.87	24.64	0.291	< 2W

Model Number	HE920-NA							
Test Item	ERP/EIRP							
Date of Test	01/30/2013					Test Site	TE01	
Bands	Modulation Type	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction Factor (dBm)	ERP		Limit
						(dBm)	(W)	
WCDMA Band V	QPSK	826.4	H	14.85	11.30	26.15	0.412	< 7W
			V	15.55	11.30	26.85	0.484	< 7W
		836.6	H	14.38	11.33	25.71	0.372	< 7W
			V	14.66	11.34	26.00	0.398	< 7W
		846.6	H	14.41	11.42	25.83	0.383	< 7W
			V	14.67	11.43	26.10	0.407	< 7W

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

4 Occupied Bandwidth Test

4.1. Limit

The Occupied Bandwidth Limit:

N/A.

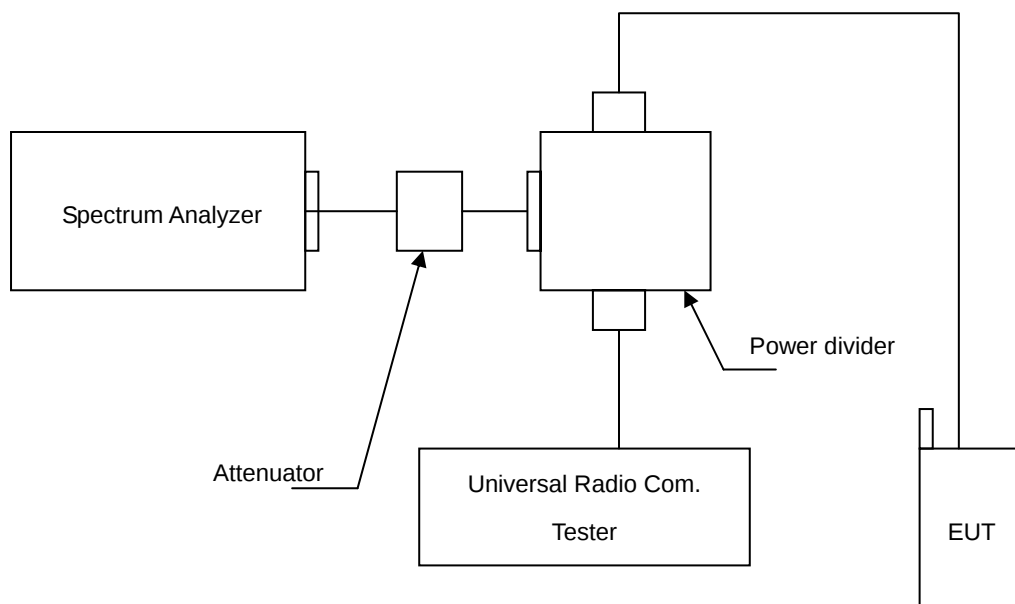
4.2. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2012	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/10/2012	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

4.3. Setup



4.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.

4.5. Uncertainty

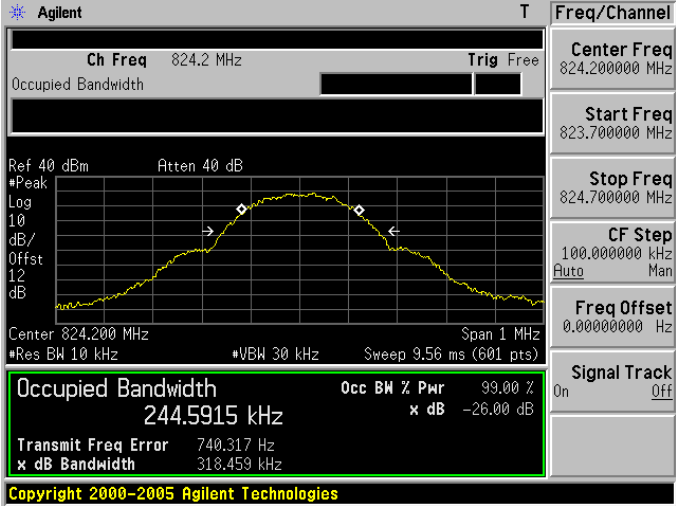
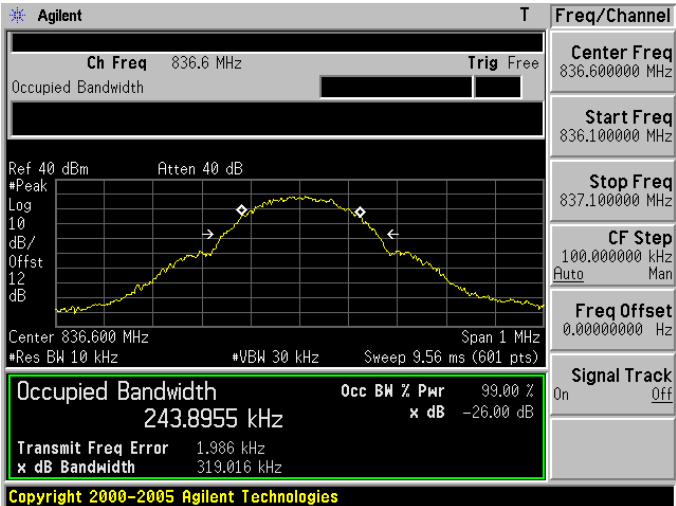
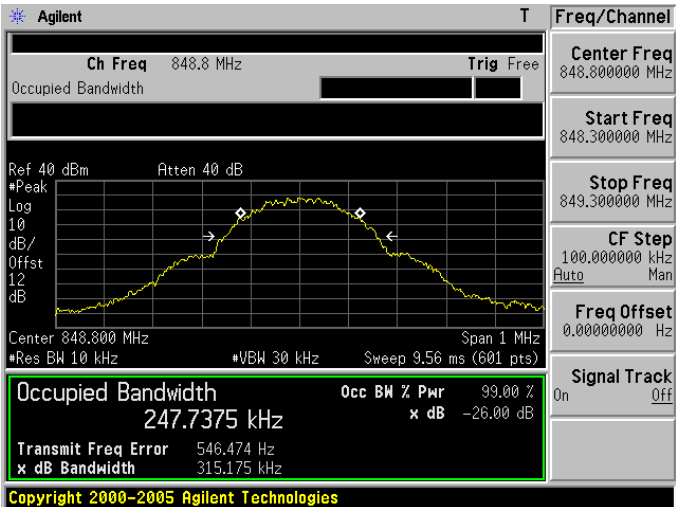
The measurement uncertainty is defined as $\pm 10\text{Hz}$

4.6. Test Result

Model Number	HE920-NA			
Test Item	Occupied Bandwidth			
Date of Test	01/29/2013			Test Site TE05
Bands	Channel	Frequency (MHz)	99% Bandwidth (kHz)	Note
GSM 850	128	824.2	244.5915	RBW:10KHz , VBW:30KHz
	190	836.6	243.8955	RBW:10KHz , VBW:30KHz
	251	848.8	247.7375	RBW:10KHz , VBW:30KHz
GSM 1900	512	1850.20	243.7932	RBW:10KHz , VBW:30KHz
	661	1880.00	246.3972	RBW:10KHz , VBW:30KHz
	810	1909.80	243.2498	RBW:10KHz , VBW:30KHz
GPRS 850	128	824.2	243.9201	RBW:10KHz , VBW:30KHz
	190	836.6	244.0954	RBW:10KHz , VBW:30KHz
	251	848.8	243.8524	RBW:10KHz , VBW:30KHz
GPRS 1900	512	1850.20	244.1356	RBW:10KHz , VBW:30KHz
	661	1880.00	245.7313	RBW:10KHz , VBW:30KHz
	810	1909.80	248.4527	RBW:10KHz , VBW:30KHz

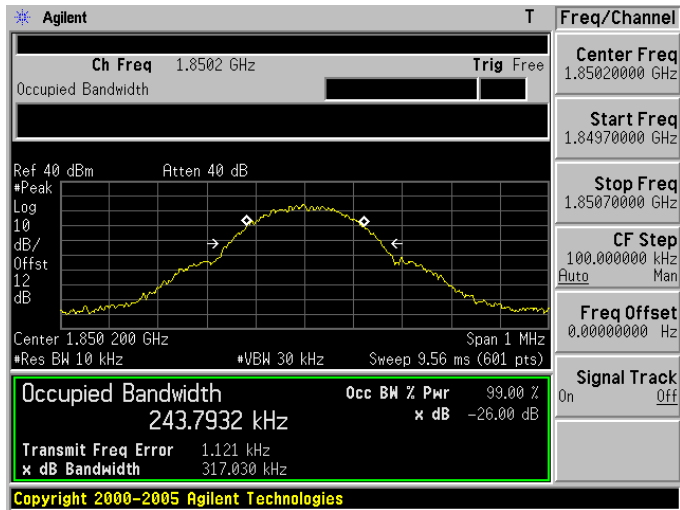
Model Number	HE920-NA			
Test Item	Occupied Bandwidth			
Date of Test	01/29/2013			Test Site TE05
Bands	Channel	Frequency (MHz)	99% Bandwidth (MHz)	Note
WCDMA Band II	9262	1852.4	4.1246	RBW:100KHz , VBW:300KHz
	9400	1880.0	4.1569	RBW:100KHz , VBW:300KHz
	9538	1907.6	4.1175	RBW:100KHz , VBW:300KHz
WCDMA Band V	4132	826.4	4.1206	RBW:100KHz , VBW:300KHz
	4183	836.6	4.1387	RBW:100KHz , VBW:300KHz
	4233	846.6	4.1321	RBW:100KHz , VBW:300KHz

4.7. Test Graphs

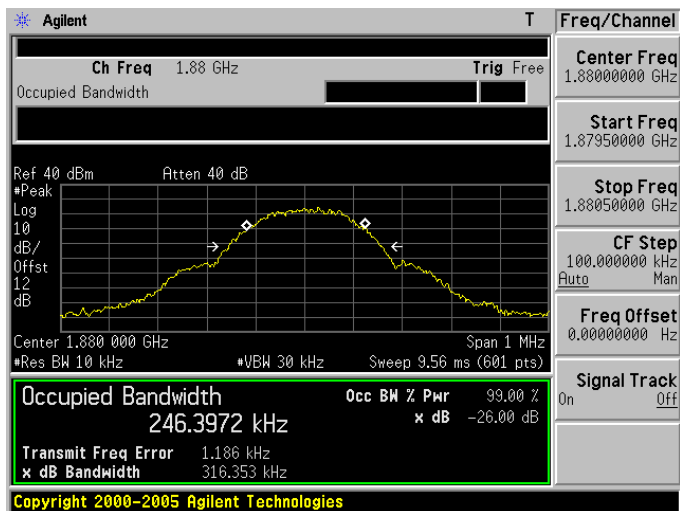
Mode 1: GSM 850 Link Mode	
824.2 MHz	 Agilent T Freq/Channel Ch Freq 824.2 MHz Trig Free Center Freq 824.200000 MHz Start Freq 823.700000 MHz Stop Freq 824.700000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Ref 40 dBm Atten 40 dB Peak Log 10 dB/Offst 12 dB Center 824.200 MHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 244.5915 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 740.317 Hz x dB Bandwidth 318.459 kHz Copyright 2000-2005 Agilent Technologies
836.6 MHz	 Agilent T Freq/Channel Ch Freq 836.6 MHz Trig Free Center Freq 836.600000 MHz Start Freq 836.100000 MHz Stop Freq 837.100000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Ref 40 dBm Atten 40 dB Peak Log 10 dB/Offst 12 dB Center 836.600 MHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 243.8955 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.986 kHz x dB Bandwidth 319.016 kHz Copyright 2000-2005 Agilent Technologies
848.8 MHz	 Agilent T Freq/Channel Ch Freq 848.8 MHz Trig Free Center Freq 848.800000 MHz Start Freq 848.300000 MHz Stop Freq 849.300000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Ref 40 dBm Atten 40 dB Peak Log 10 dB/Offst 12 dB Center 848.800 MHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 247.7375 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 546.474 Hz x dB Bandwidth 315.175 kHz Copyright 2000-2005 Agilent Technologies

Mode 2: GSM 1900 Link Mode

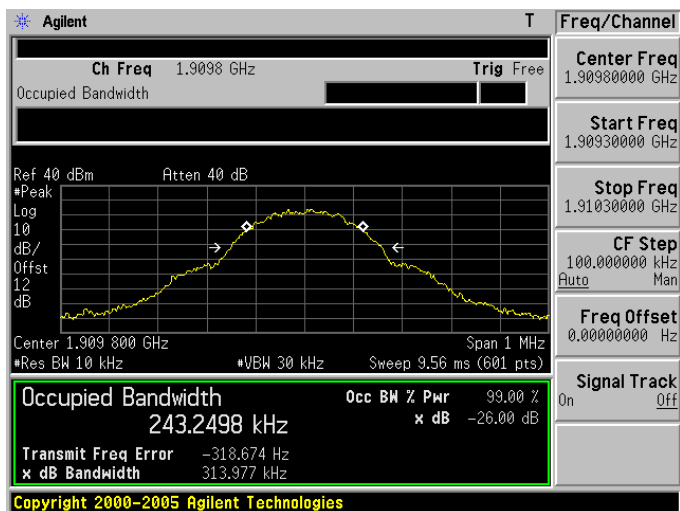
1850.20 MHz



1880.00 MHz

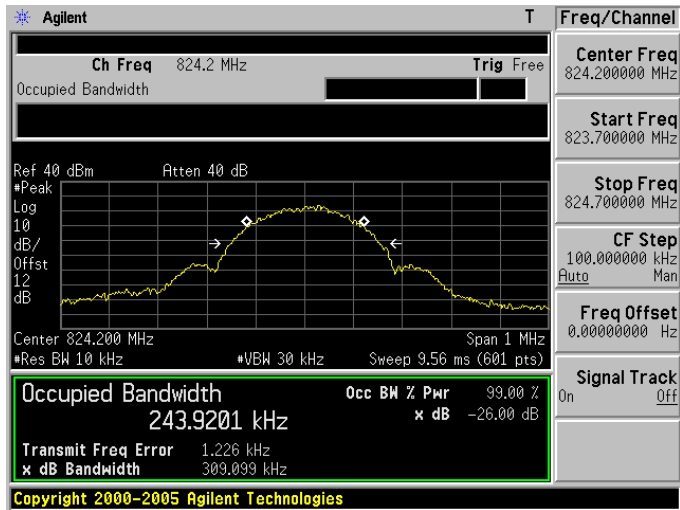


1909.80 MHz

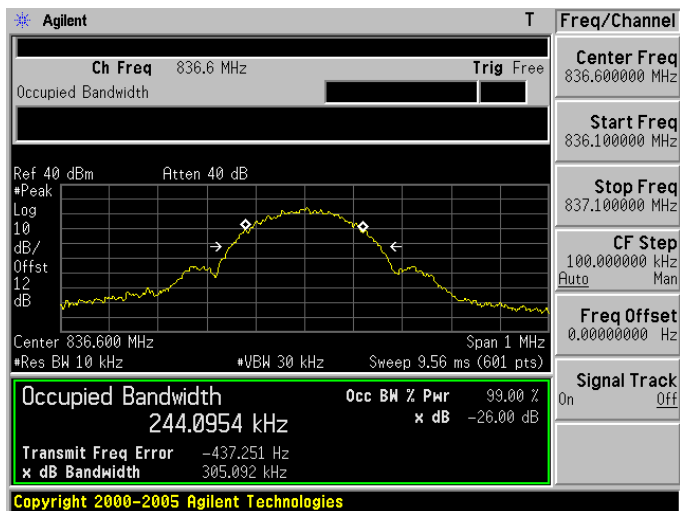


Mode 3: EGPRS 850 Link Mode

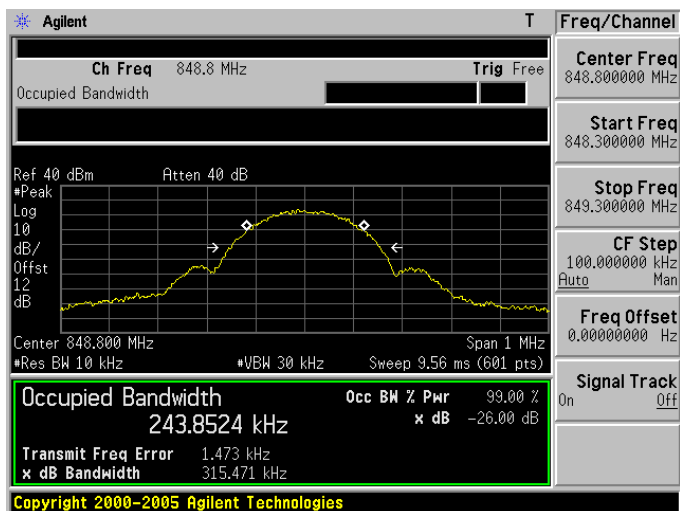
824.2 MHz



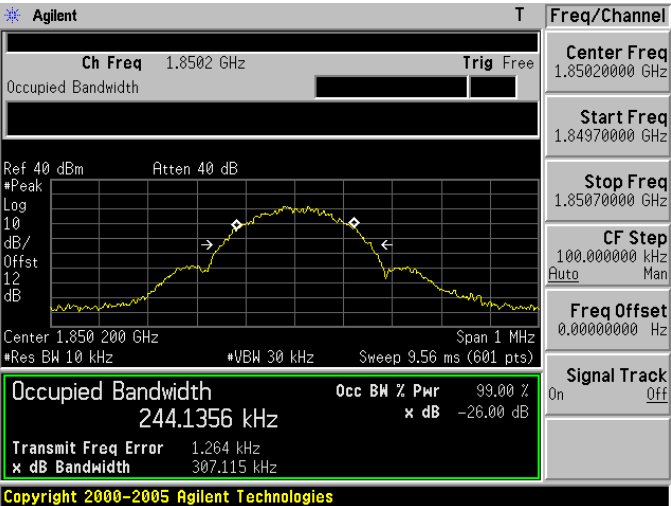
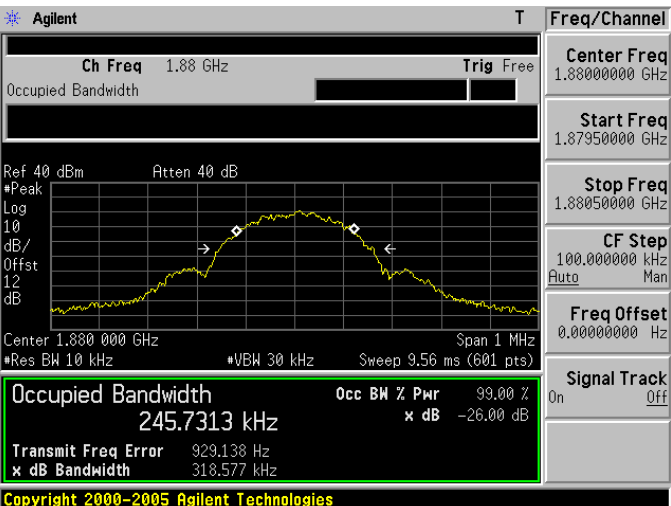
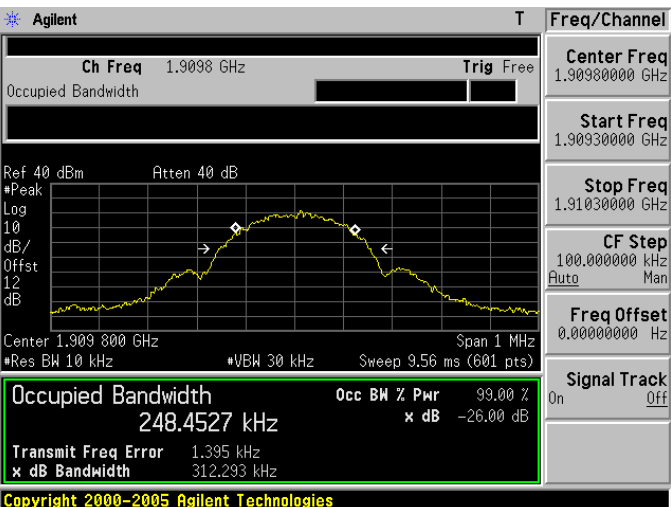
836.6 MHz



848.8 MHz

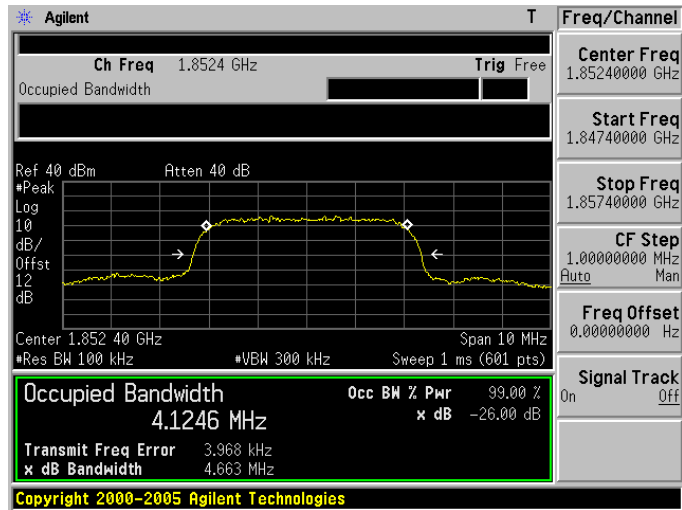


Mode 4: EGPRS 1900 Link Mode

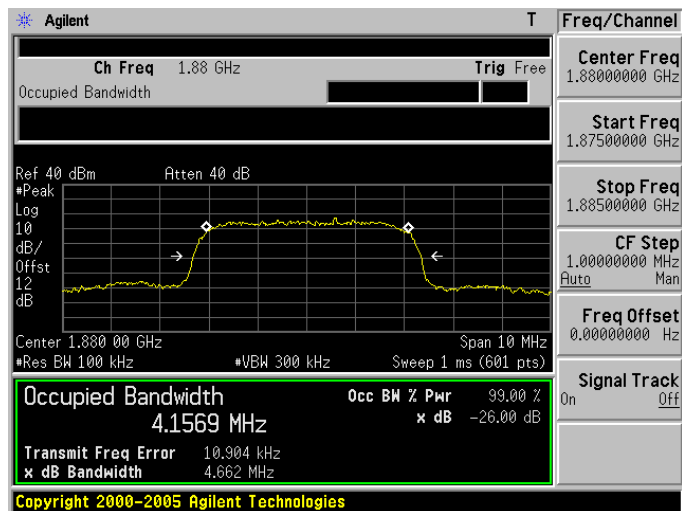
1850.20 MHz	 Agilent T Ch Freq 1.8502 GHz Trig Free Occupied Bandwidth Ref 40 dBm Atten 40 dB Log dB/ Offst 12 dB Center 1.850 200 GHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 244.1356 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.264 kHz x dB Bandwidth 307.115 kHz Copyright 2000-2005 Agilent Technologies Freq/Channel Center Freq 1.85020000 GHz Start Freq 1.84970000 GHz Stop Freq 1.85070000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
1880.00 MHz	 Agilent T Ch Freq 1.88 GHz Trig Free Occupied Bandwidth Ref 40 dBm Atten 40 dB Log dB/ Offst 12 dB Center 1.880 000 GHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 245.7313 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 929.138 Hz x dB Bandwidth 318.577 kHz Copyright 2000-2005 Agilent Technologies Freq/Channel Center Freq 1.88000000 GHz Start Freq 1.87950000 GHz Stop Freq 1.88050000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
1909.80 MHz	 Agilent T Ch Freq 1.9098 GHz Trig Free Occupied Bandwidth Ref 40 dBm Atten 40 dB Log dB/ Offst 12 dB Center 1.909 800 GHz Span 1 MHz Res BW 10 kHz VBW 30 kHz Sweep 9.56 ms (601 pts) Occupied Bandwidth 248.4527 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.395 kHz x dB Bandwidth 312.293 kHz Copyright 2000-2005 Agilent Technologies Freq/Channel Center Freq 1.90980000 GHz Start Freq 1.90930000 GHz Stop Freq 1.91030000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 5: WCDMA Band II Link Mode

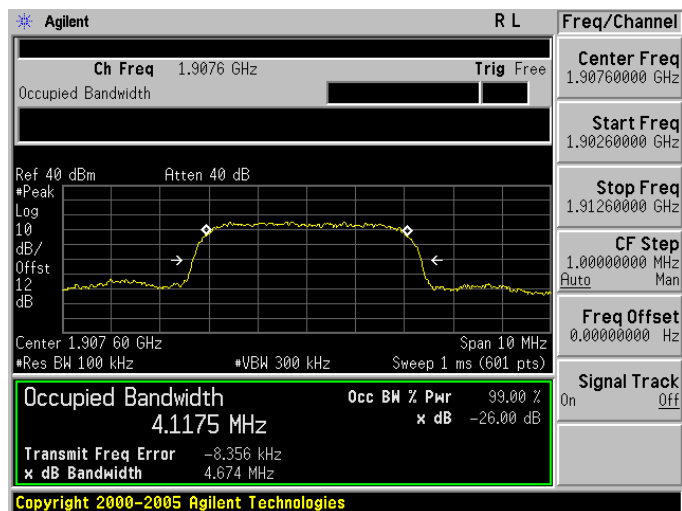
1850.20 MHz



1880.00 MHz

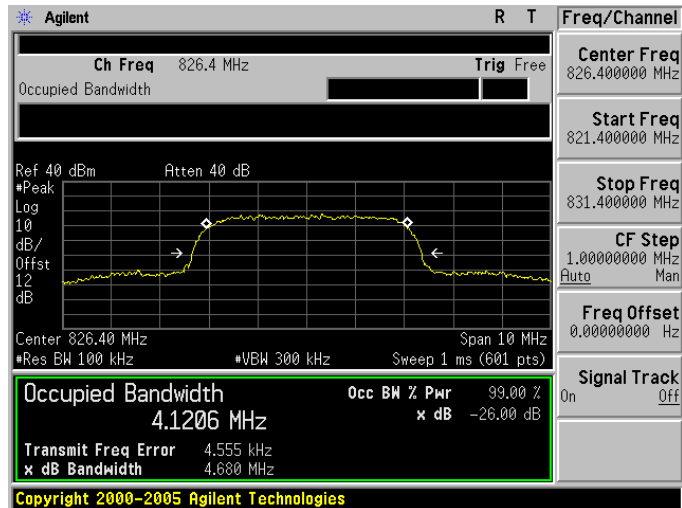


1909.80 MHz

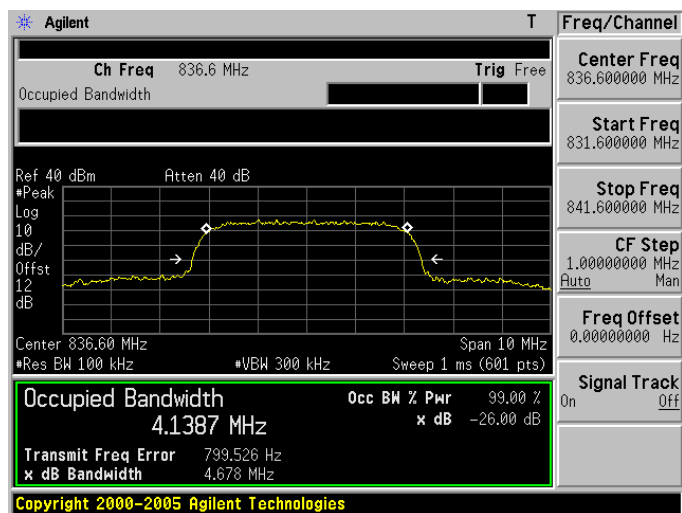


Mode 6: WCDMA Band V Link Mode

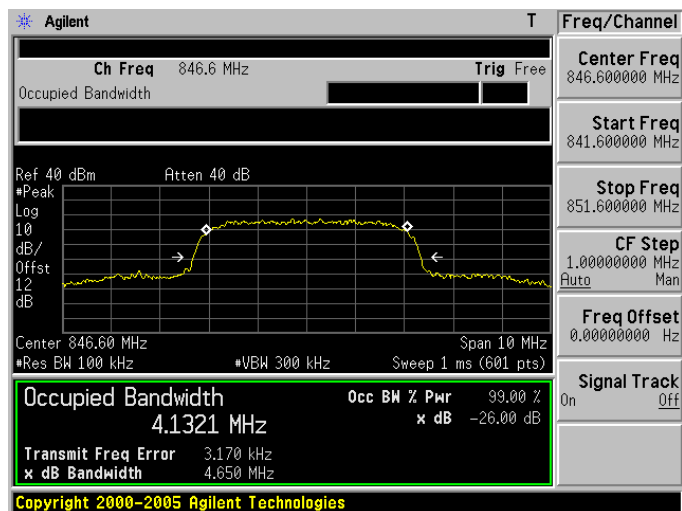
826.4 MHz



836.6 MHz



846.6 MHz



5 Band Edge Test

5.1. Limit

The Band Edge Limit:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

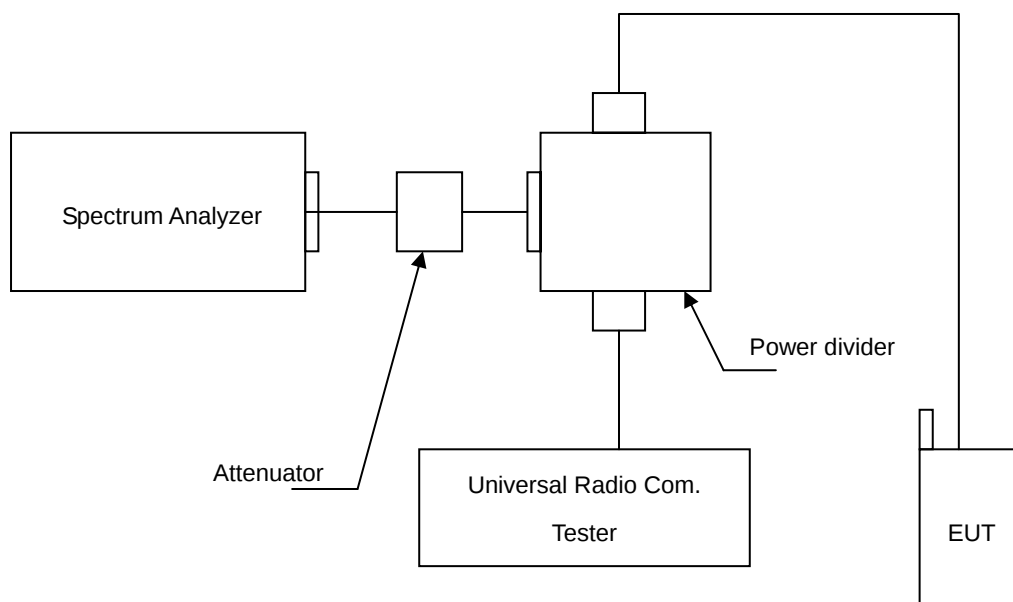
5.2. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2012	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/10/2012	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

5.3. Setup



5.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

3. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
4. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.
5. The band edge setting:
 - a. RB=10 kHz; VB=30 kHz for GSM 850 and PCS 1900.
 - b. RB=100 kHz; VB=300 kHz for WCDMA Band V and WCDMA Band II.

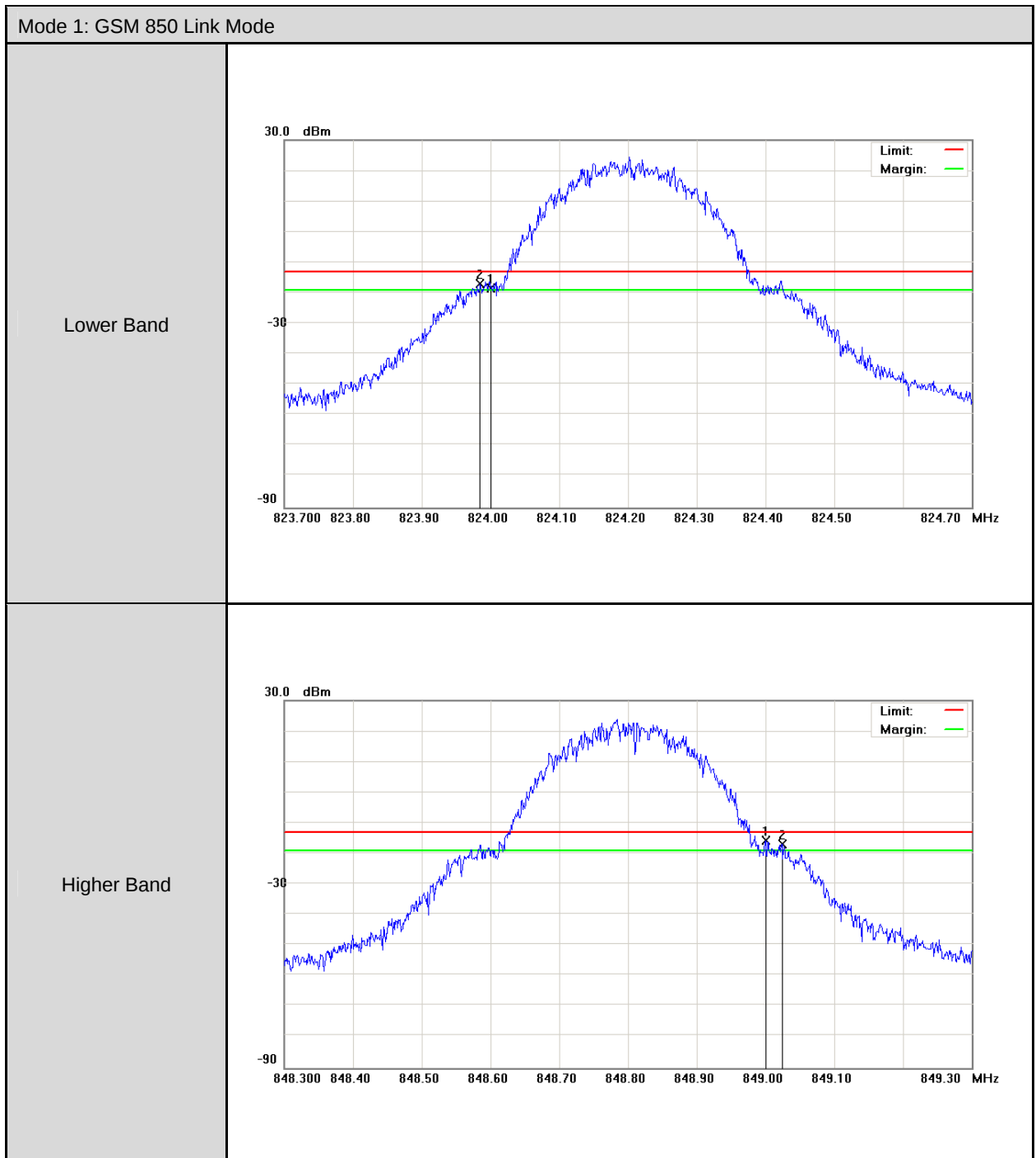
5.5. Uncertainty

The measurement uncertainty is defined as $\pm 10\text{Hz}$

5.6. Test Result

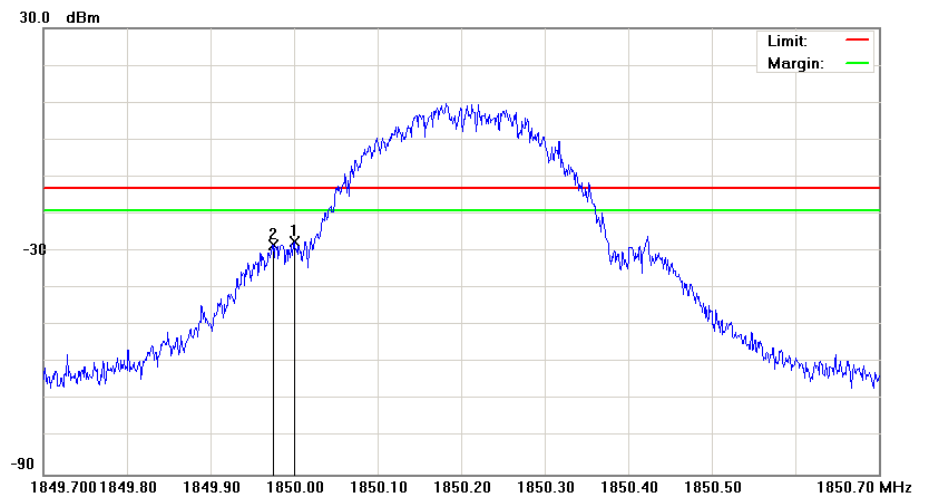
Model Number		HE920-NA				
Test Item		Band Edge				
Date of Test		01/29/2013			Test Site	TE05
Bands		Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)	Result
GSM 850	Lower	128	824.0000	-17.00	-13	Pass
	Higher	251	849.0000	-15.67	-13	Pass
GSM 1900	Lower	512	1850.000	-27.50	-13	Pass
	Higher	810	1910.000	-26.60	-13	Pass
WCDMA Band II	Lower	9262	1850.000	-30.12	-13	Pass
	Higher	9538	1910.000	-31.21	-13	Pass
WCDMA Band V	Lower	4132	824.0000	-16.56	-13	Pass
	Higher	4233	849.0000	-19.05	-13	Pass

5.7. Test Graphs

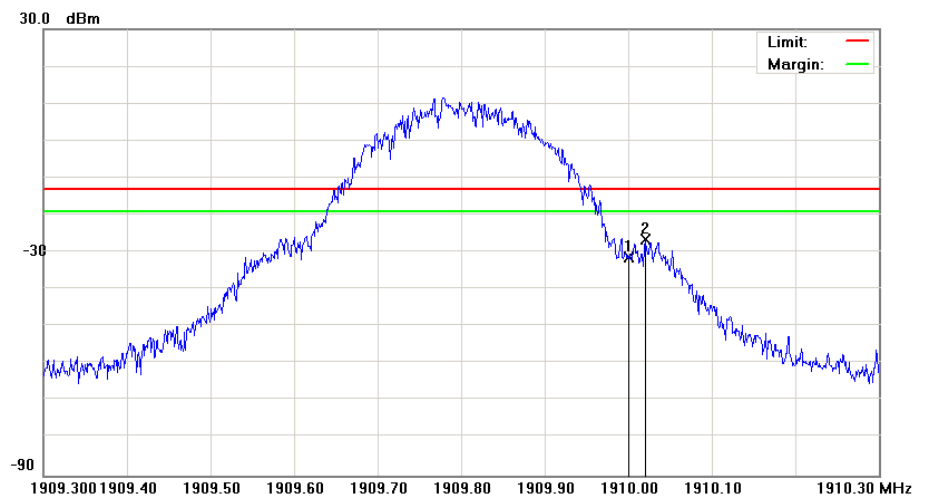


Mode 2: GSM 1900 Link Mode

Lower Band

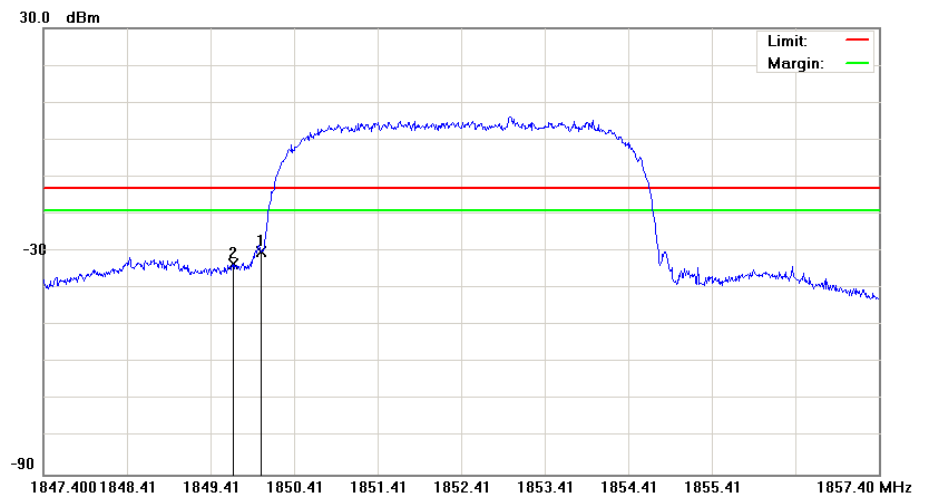


Higher Band

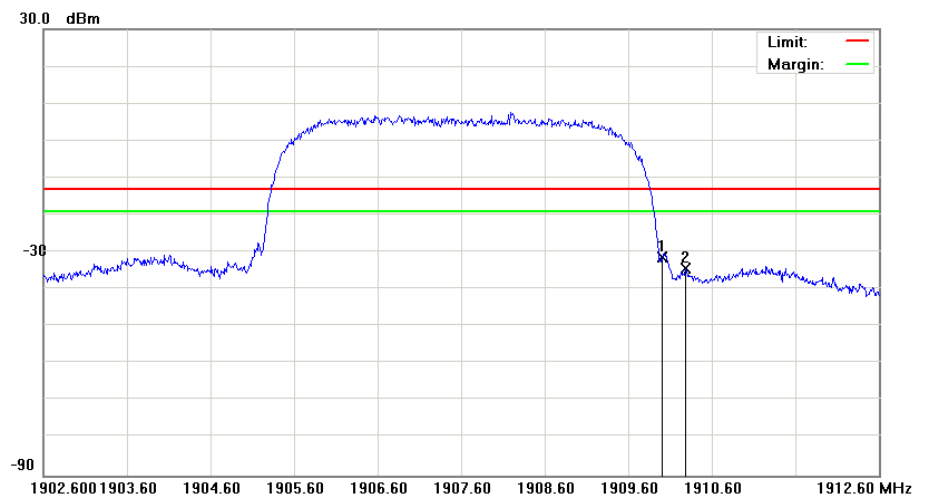


Mode 5: WCDMA Band II Link Mode

Lower Band

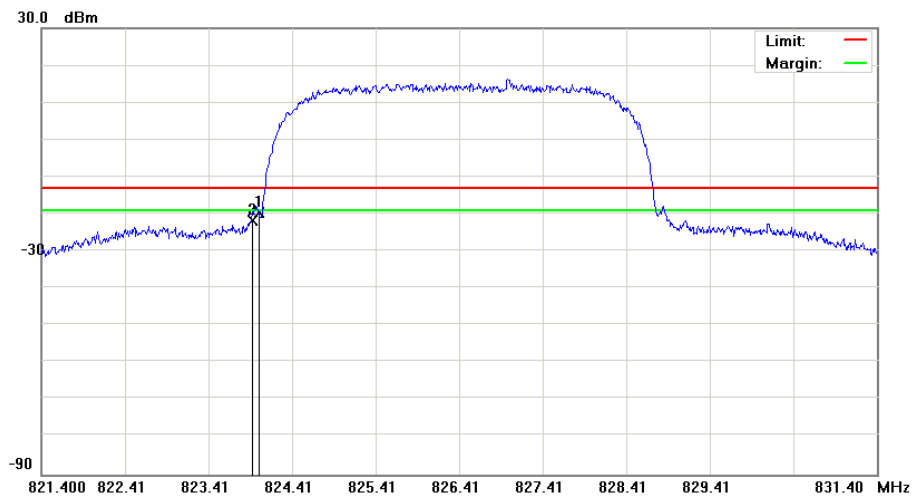


Higher Band

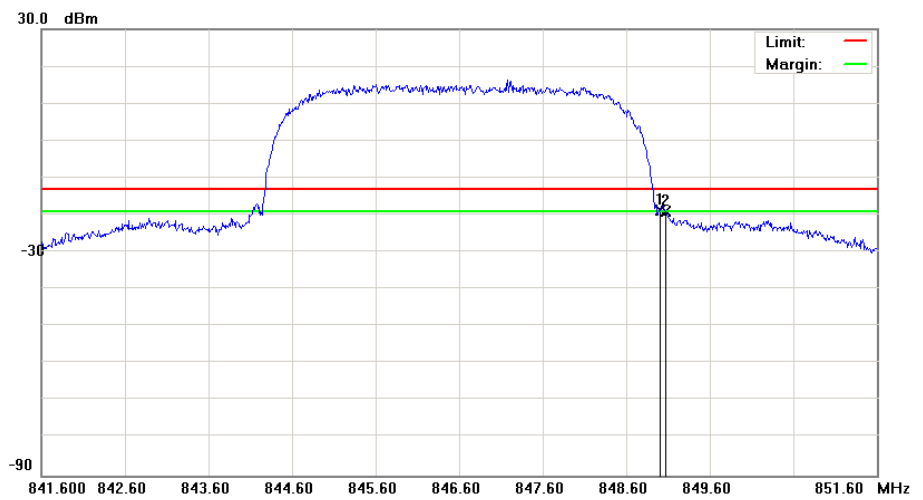


Mode 6: WCDMA Band V Link Mode

Lower Band



Higher Band



6 Conducted Spurious Emission Test

6.1. Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

6.2. Test Instruments

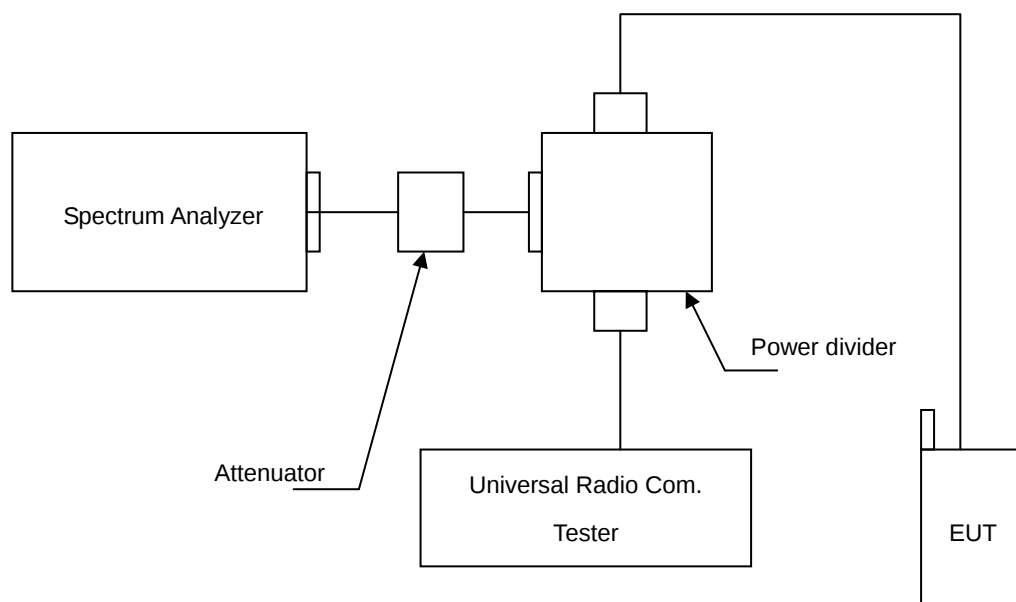
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2012	(2)
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/10/2012	(1)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power Divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

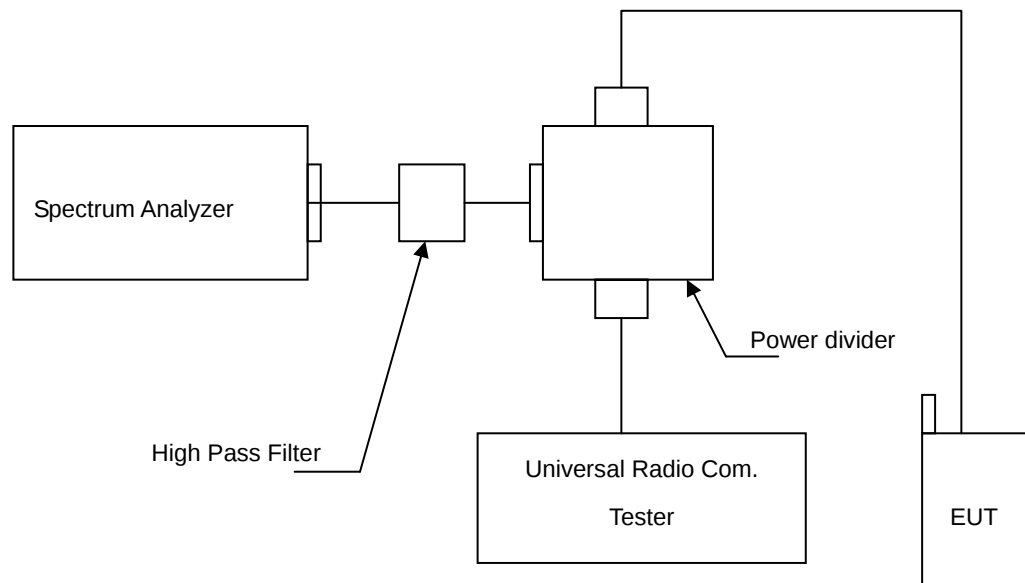
Note: N.C.R. = No Calibration Request.

6.3. Setup

Below 2.8GHz



Above 2.8GHz



6.4. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.
4. Test setting at GSM 850 RB>100 kHz, VB>100 kHz; PCS 1900 RB>1MHz, VB>1MHz.

6.5. Uncertainty

The measurement uncertainty is evaluated as ± 2.24 dB.

6.6. Test Result

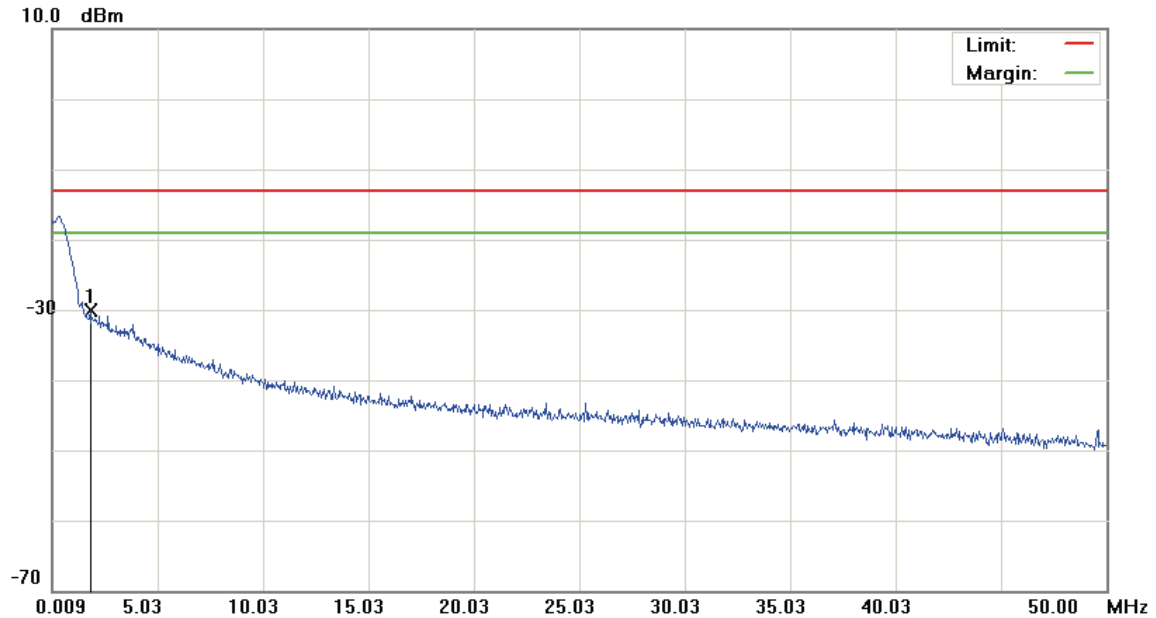
Model Number	HE920-NA		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 1 / Mode 2 / Mode 4 / Mode 5		
Date of Test	11/20/2012	Test Site	TE05

File :HE920 NA(CH128)

Data :#1

Date:2012/11/20

Time: 下午 04:08:37



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 128

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1.8337	-61.22	31.12	-30.10	-13.00	-17.10	peak		Comment

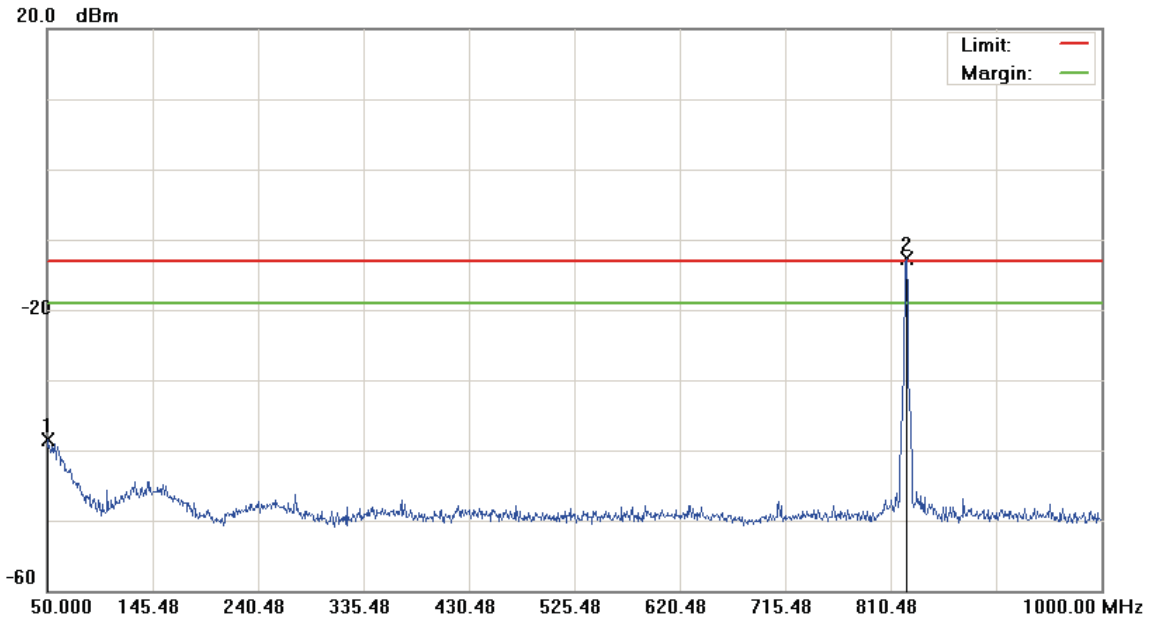
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH128)

Data :#2

Date:2012/11/20

Time: 下午 04:09:01



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 128

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1		50.4750	-53.03	14.61	-38.42	-13.00	-25.42	peak		
2	*	824.2500	-16.47	3.84	-12.63	-13.00	0.37	peak		Tx

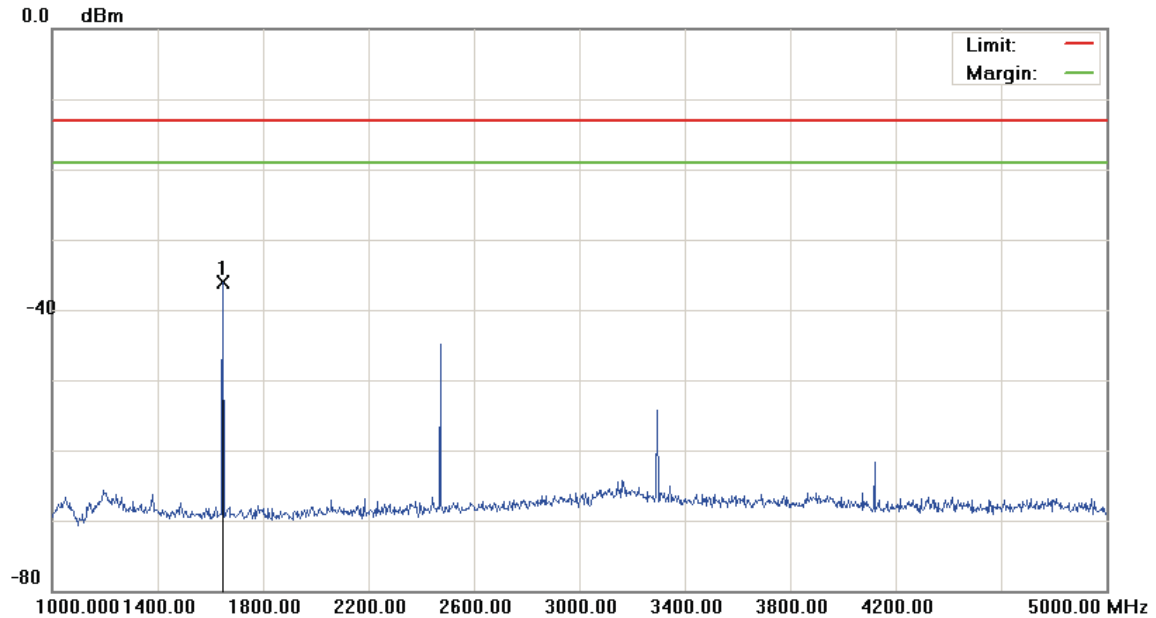
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH128)

Data :#3

Date:2012/11/20

Time: 下午 04:56:21



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 128

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1648.000	-40.64	4.45	-36.19	-13.00	-23.19	peak		

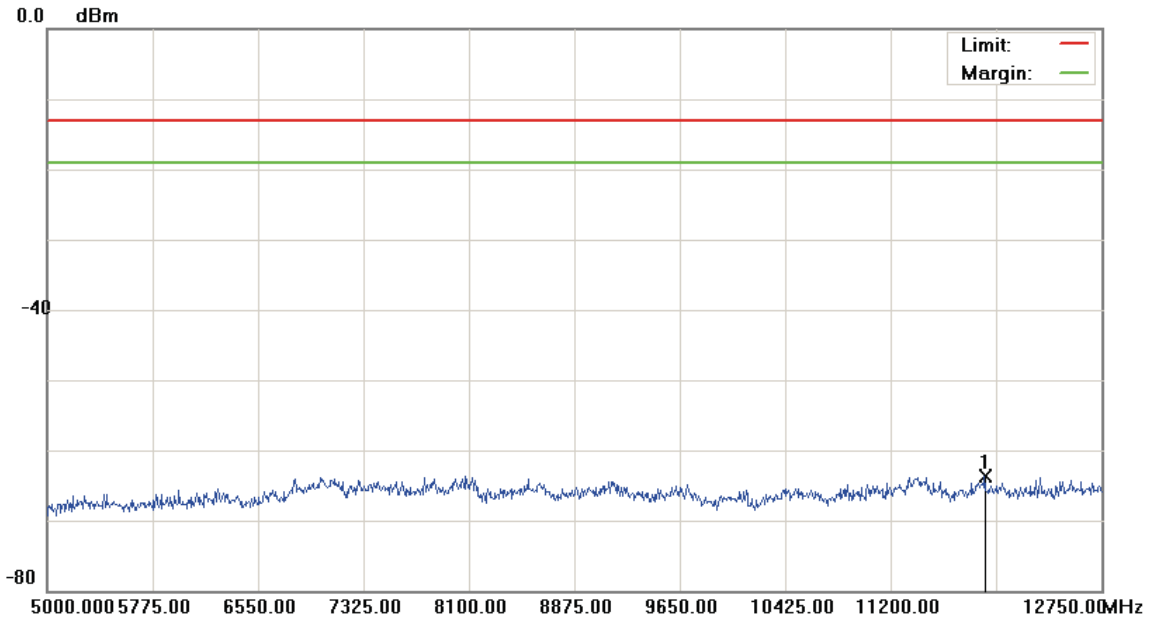
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH128)

Data :#4

Date:2012/11/20

Time: 下午 04:56:44



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 128

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	11893.625	-69.08	5.32	-63.76	-13.00	-50.76	peak		

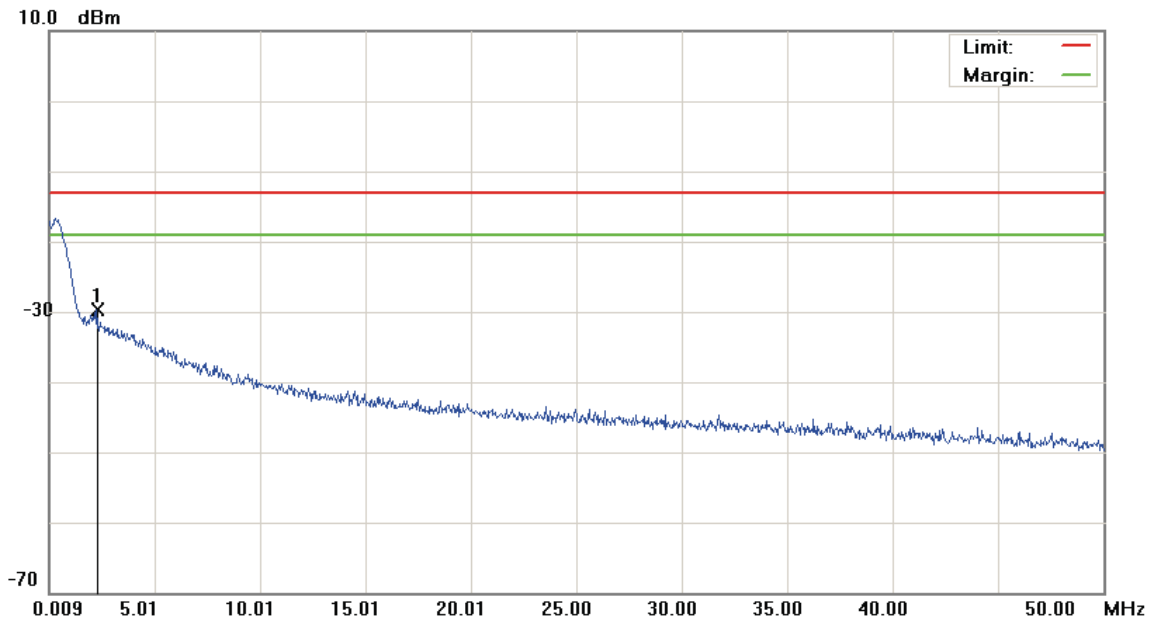
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH190)

Data :#1

Date:2012/11/20

Time: 下午 04:11:34



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 190

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	2.2835	-60.74	31.07	-29.67	-13.00	-16.67	peak		

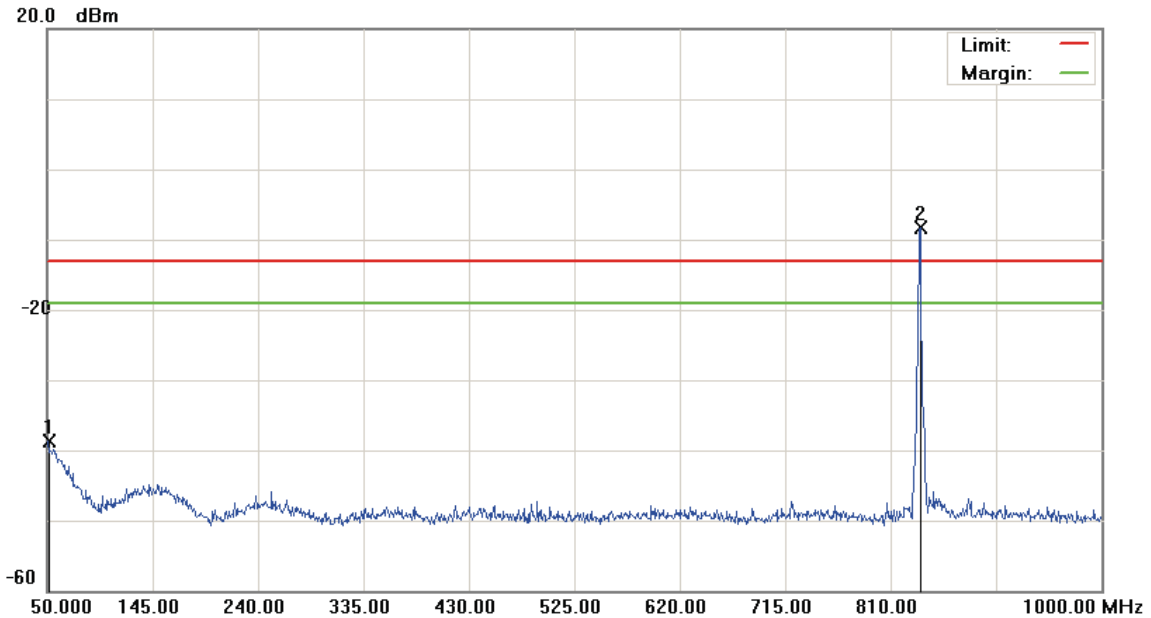
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH190)

Data :#2

Date:2012/11/20

Time: 下午 04:11:58



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 190

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1		51.4250	-53.23	14.44	-38.79	-13.00	-25.79	peak		
2	*	836.6000	-12.22	3.96	-8.26	-13.00	4.74	peak		Tx

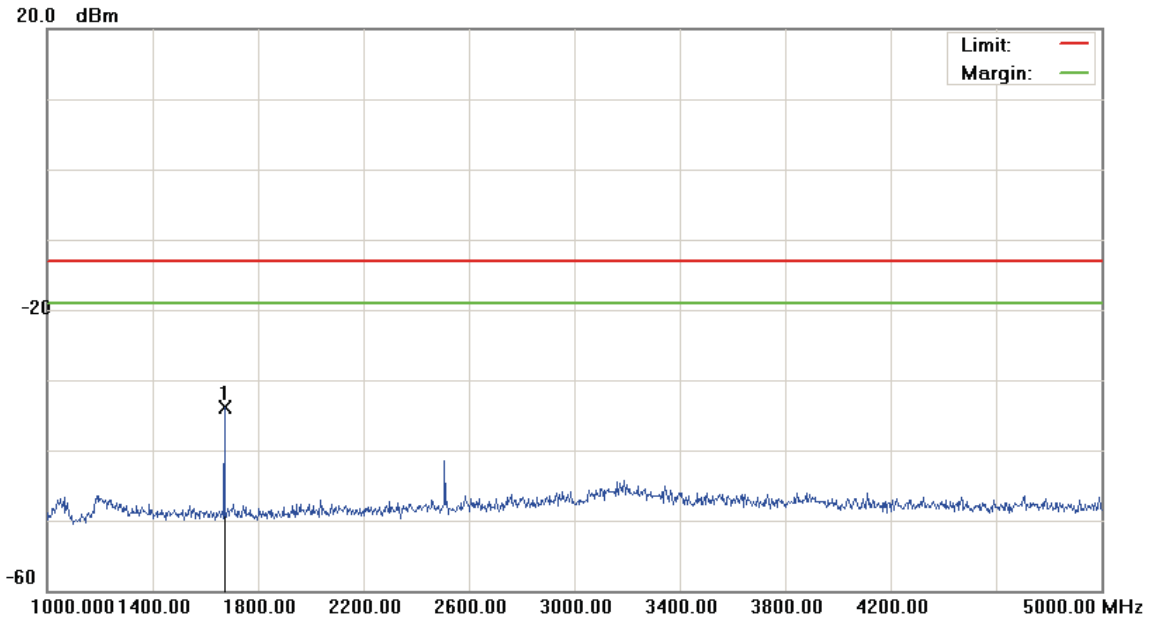
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH190)

Data :#3

Date:2012/11/20

Time: 下午 04:57:19



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 190

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1674.000	-38.41	4.46	-33.95	-13.00	-20.95	peak		

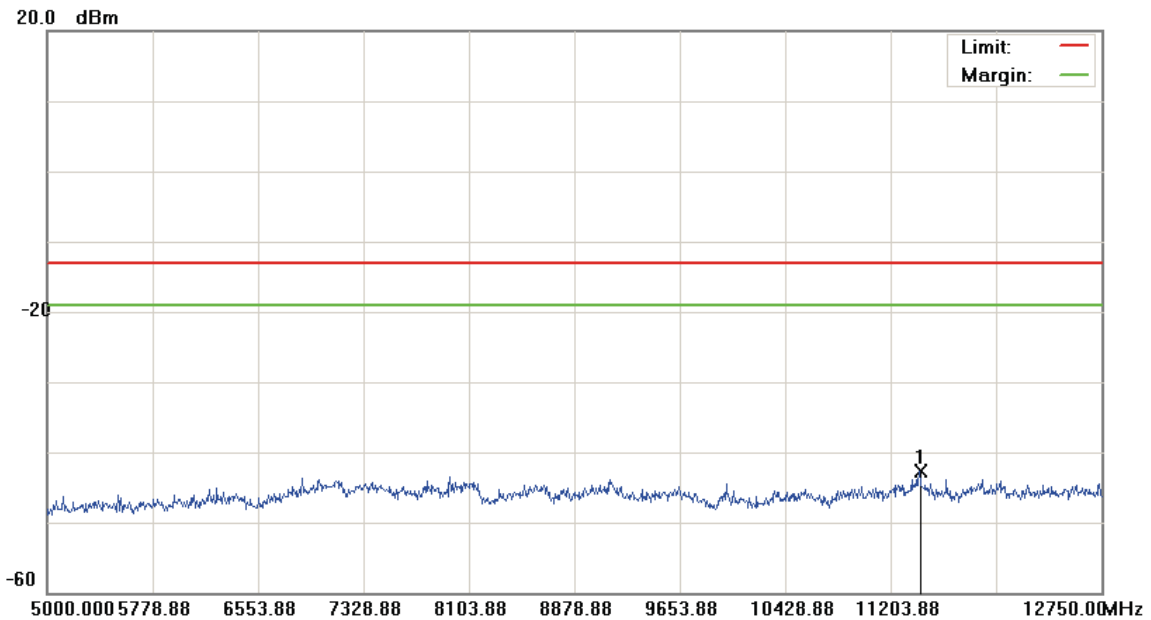
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH190)

Data :#4

Date:2012/11/20

Time: 下午 04:57:42



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 190

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	11413.125	-48.31	5.57	-42.74	-13.00	-29.74	peak		

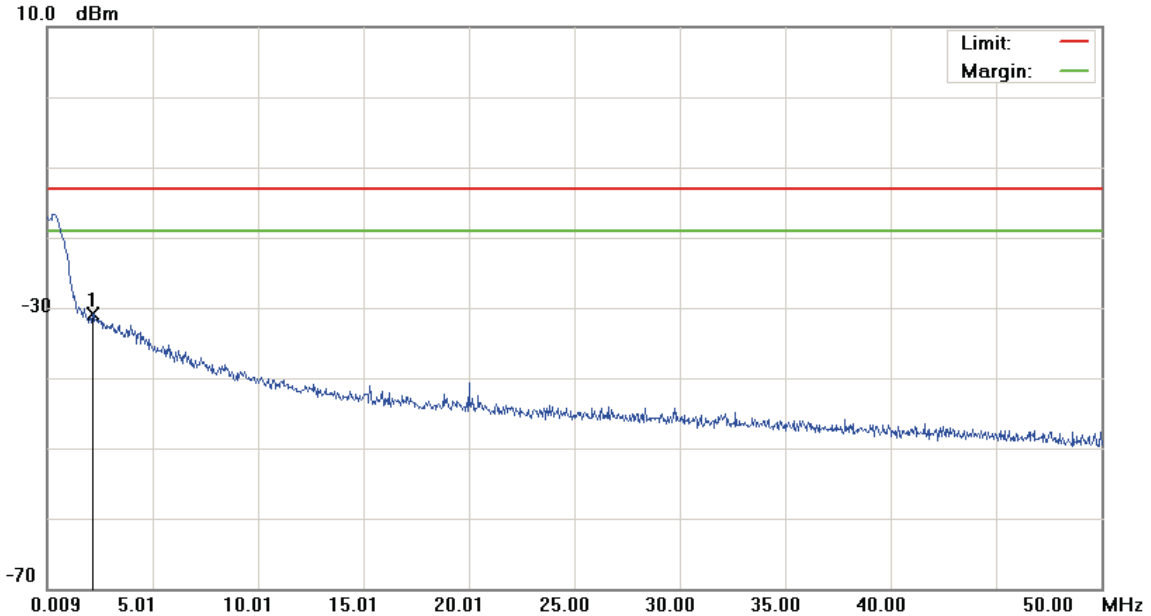
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH251)

Data :#1

Date:2012/11/20

Time: 下午 04:13:47



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 251

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.1585	-62.26	31.41	-30.85	-13.00	-17.85	peak		Comment

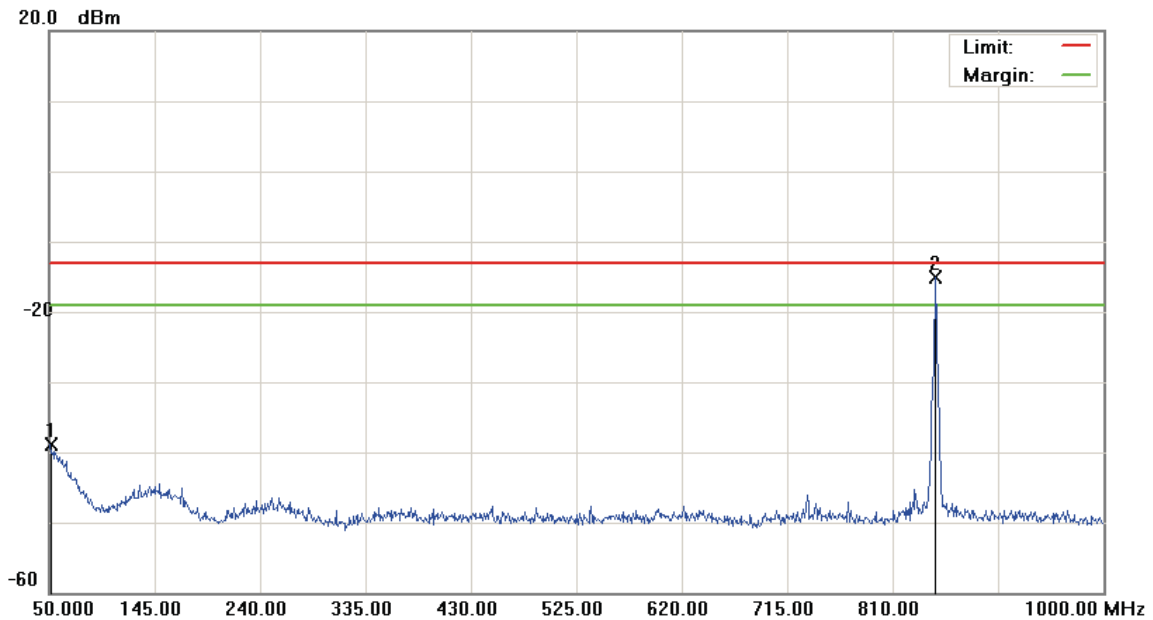
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH251)

Data :#2

Date:2012/11/20

Time: 下午 04:14:11



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 251

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1		51.4250	-53.40	14.44	-38.96	-13.00	-25.96	peak		
2	*	848.9500	-19.00	3.98	-15.02	-13.00	-2.02	peak		Tx

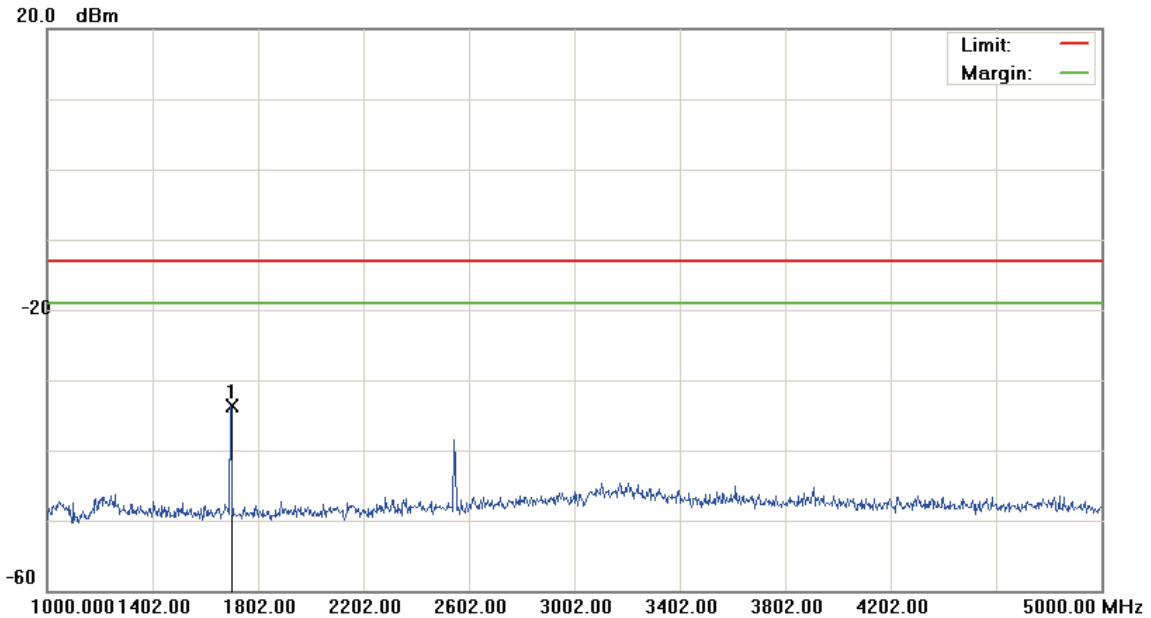
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH251)

Data :#3

Date:2012/11/20

Time: 下午 04:58:55



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 251

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1698.000	-38.20	4.48	-33.72	-13.00	-20.72	peak		

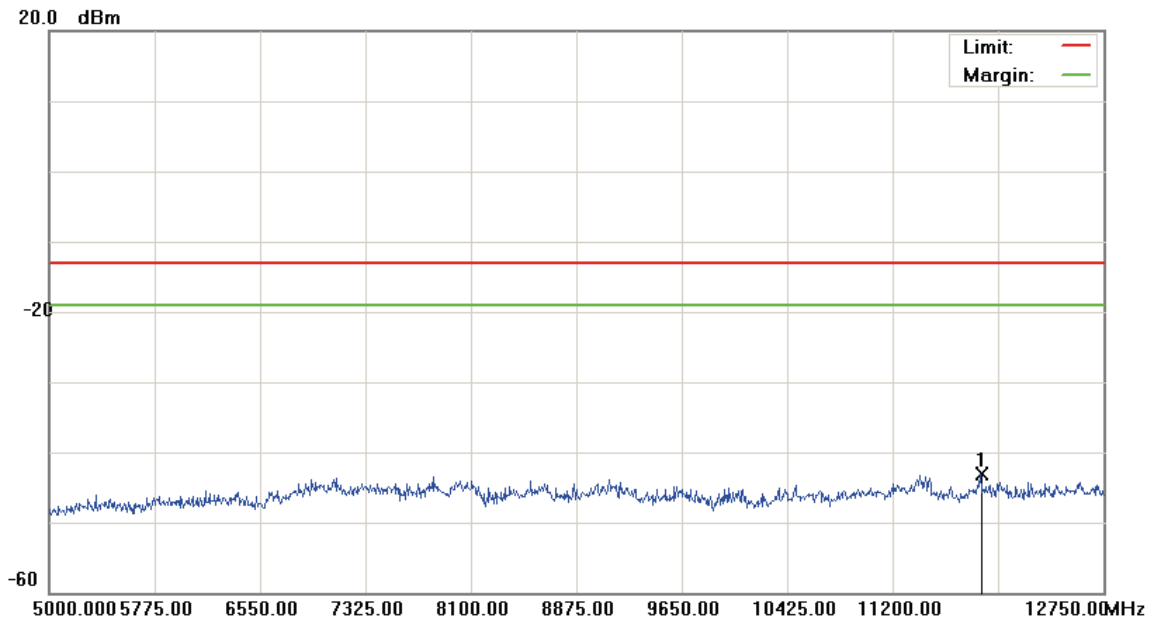
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH251)

Data :#4

Date:2012/11/20

Time: 下午 04:59:18



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 850

Note: CH 251

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	11847.125	-48.89	5.71	-43.18	-13.00	-30.18	peak		

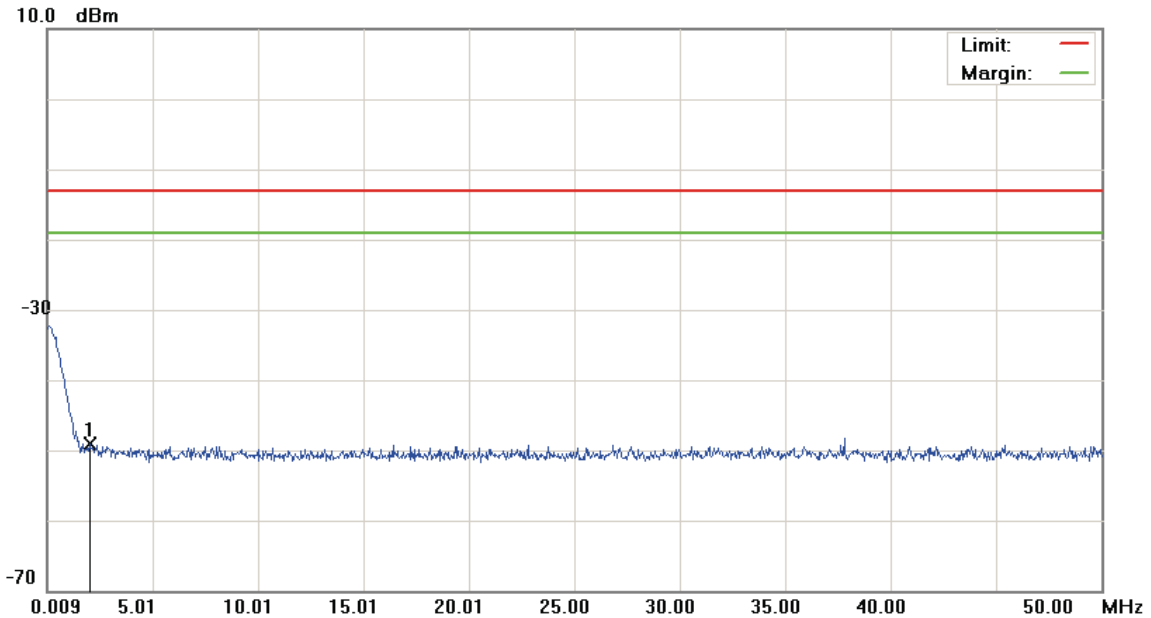
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH512)

Data :#1

Date:2012/11/20

Time: 下午 03:28:12



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 512

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.0335	-62.20	13.20	-49.00	-13.00	-36.00	peak		Comment

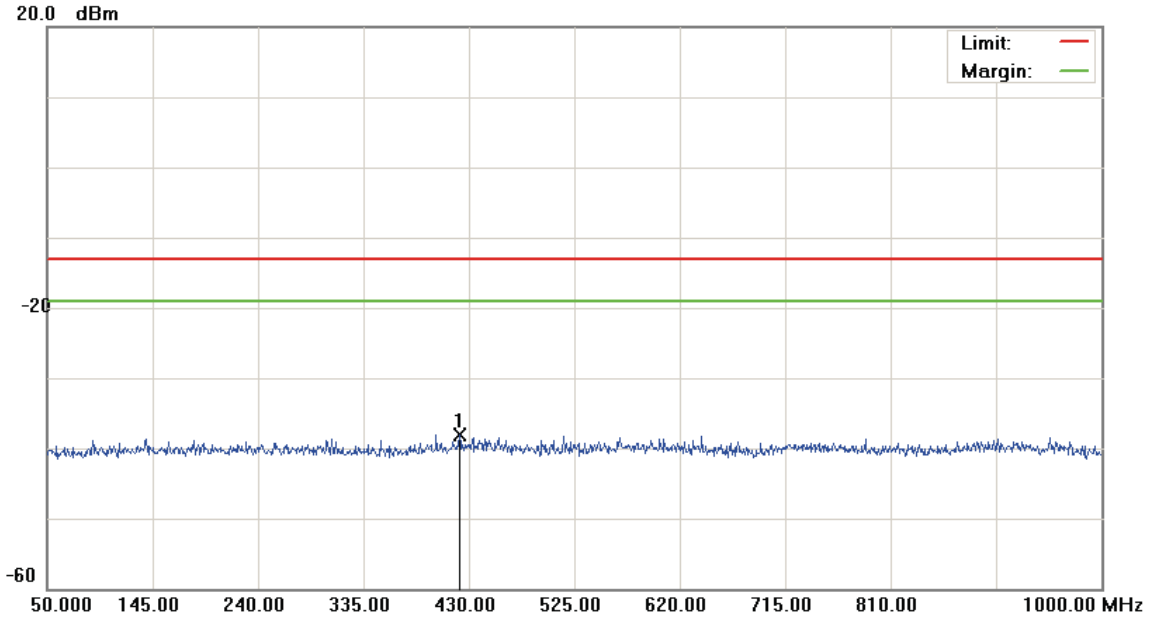
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH512)

Data :#2

Date:2012/11/20

Time: 下午 03:28:36



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 512

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	421.4500	-51.39	13.24	-38.15	-13.00	-25.15	peak		

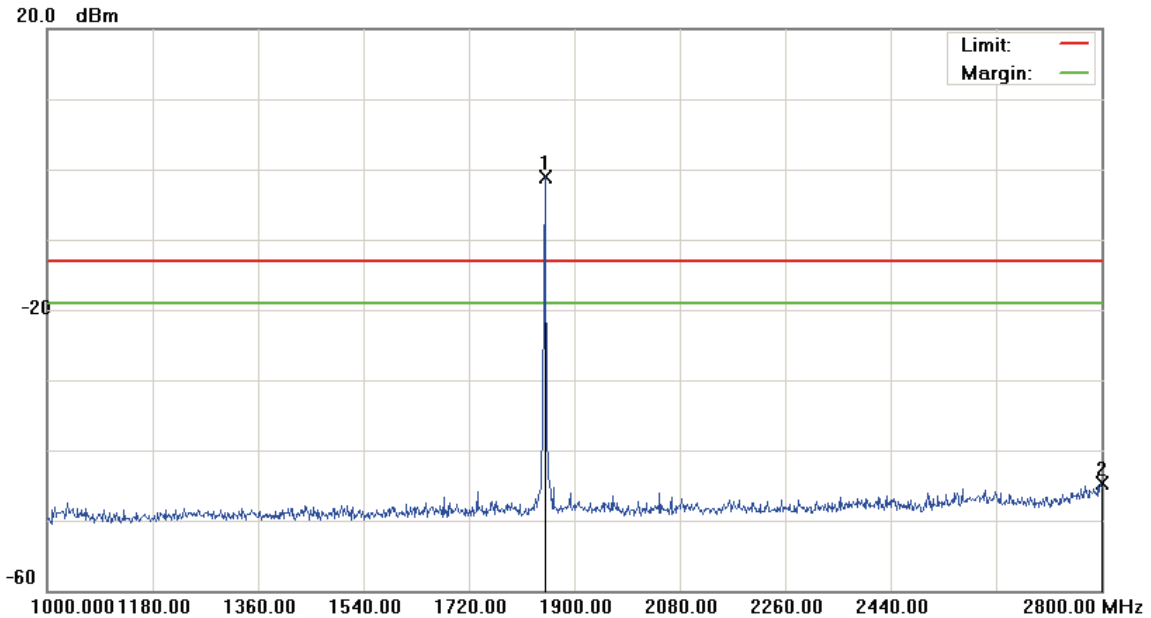
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH512)

Data :#3

Date:2012/11/20

Time: 下午 03:59:44



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 512

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1850.500	-5.44	4.26	-1.18	-13.00	11.82	peak		Tx
2		2799.100	-50.63	5.91	-44.72	-13.00	-31.72	peak		

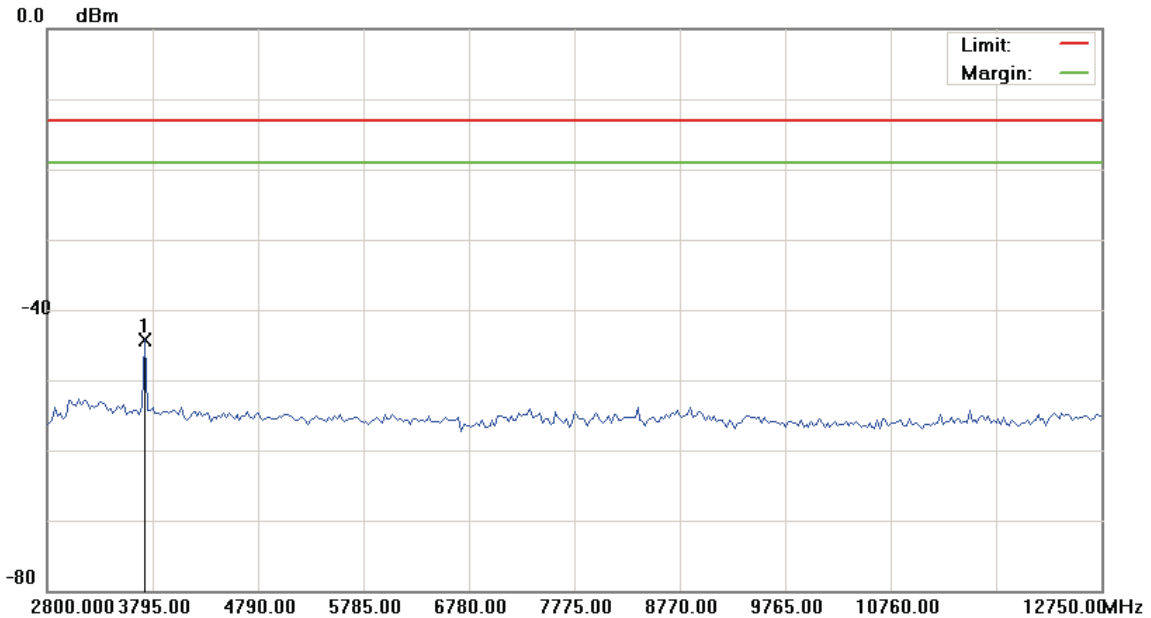
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH512)

Data :#4

Date:2012/11/20

Time: 下午 05:04:30



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 512

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3720.375	-49.15	4.88	-44.27	-13.00	-31.27	peak		

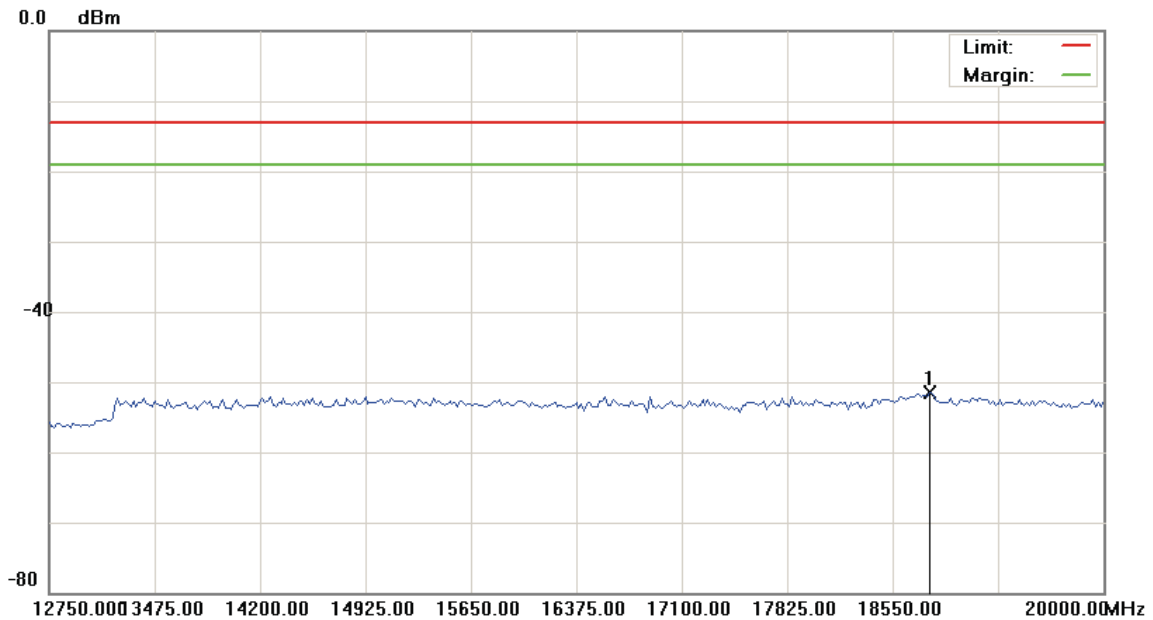
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH512)

Data :#5

Date:2012/11/20

Time: 下午 05:04:50



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 512

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	18803.750	-58.66	7.10	-51.56	-13.00	-38.56	peak		

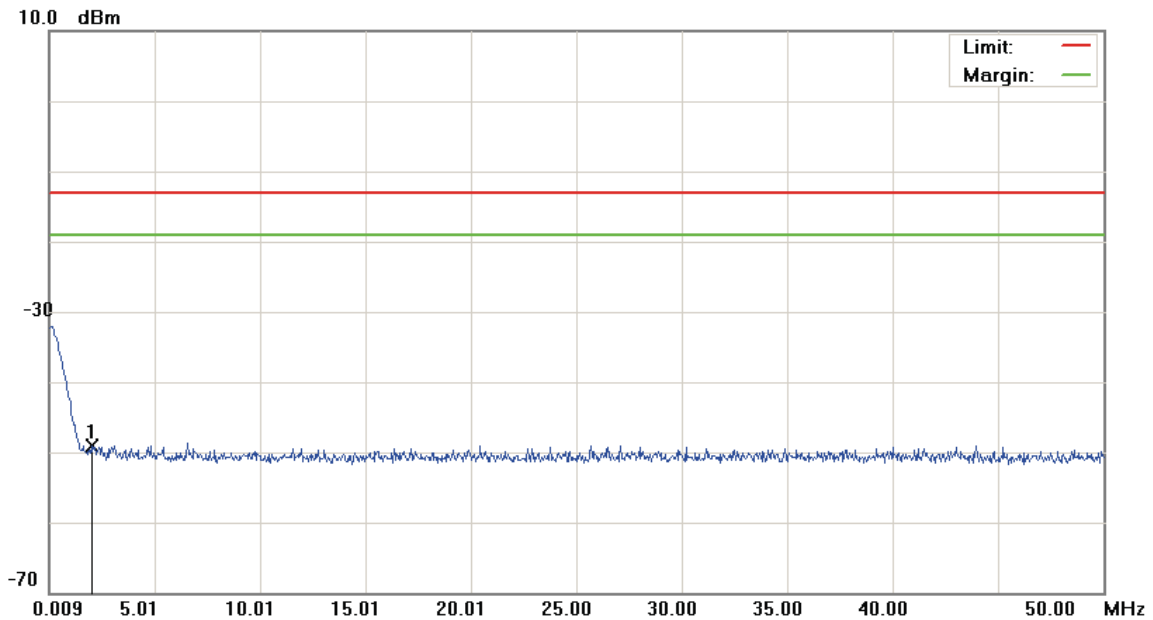
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH661)

Data :#1

Date:2012/11/20

Time: 下午 03:29:22



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 661

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	2.0085	-62.21	13.21	-49.00	-13.00	-36.00	peak		

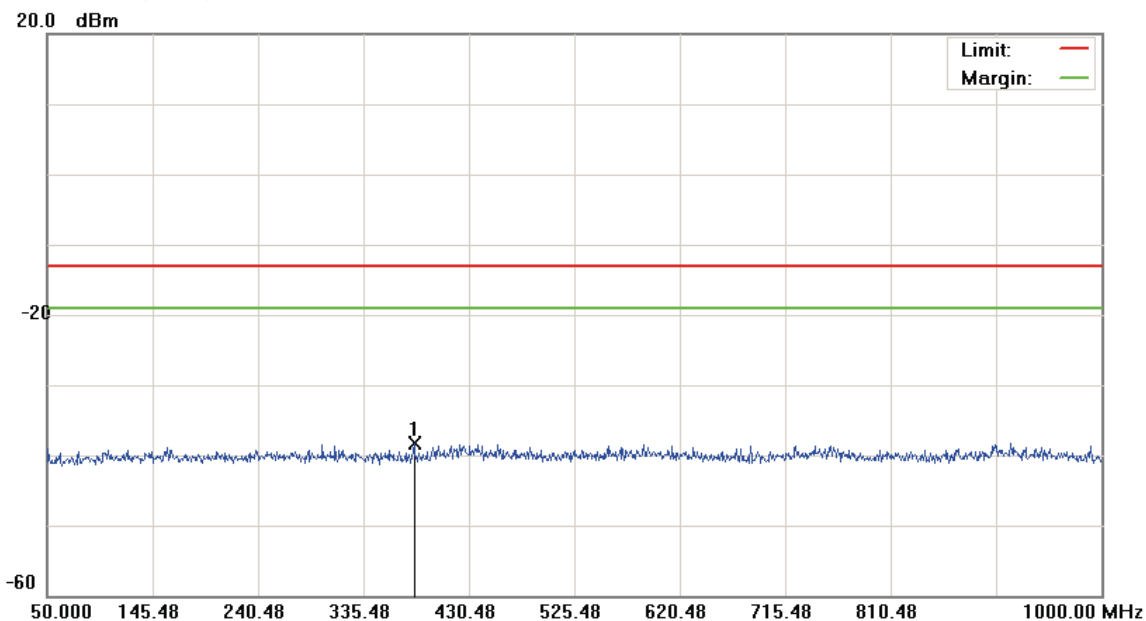
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH661)

Data :#2

Date:2012/11/20

Time: 下午 03:29:46



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 661

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	381.0750	-51.43	13.22	-38.21	-13.00	-25.21	peak		

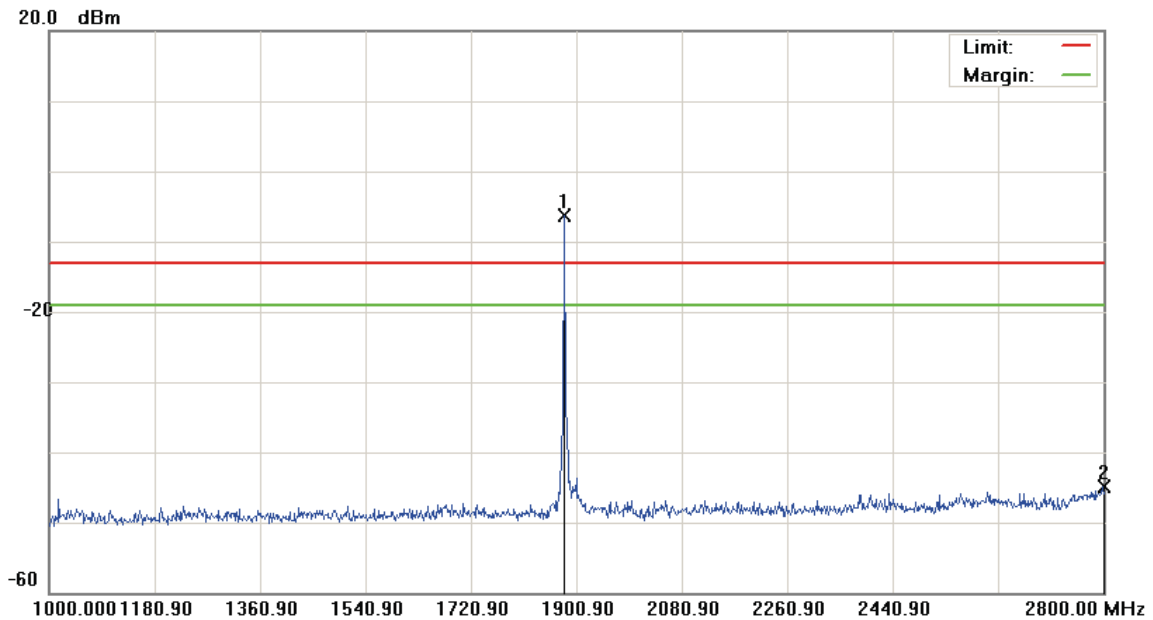
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH661)

Data :#3

Date:2012/11/20

Time: 下午 04:02:07



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 661

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1880.200	-10.86	4.65	-6.21	-13.00	6.79	peak		Tx
2		2799.100	-50.75	5.91	-44.84	-13.00	-31.84	peak		

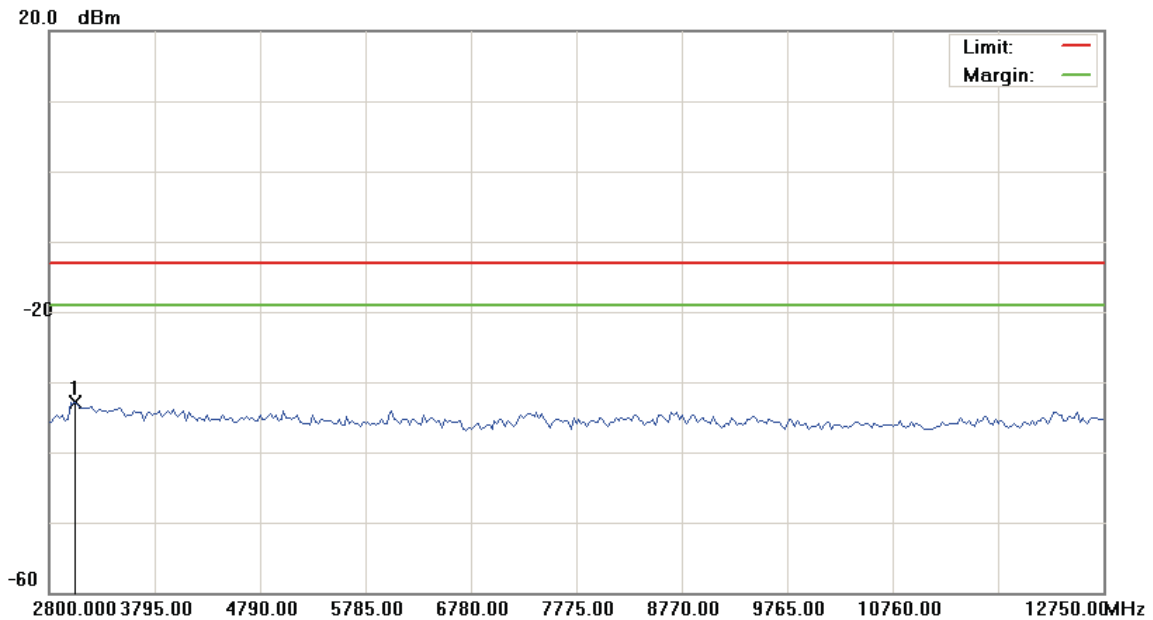
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH661)

Data :#4

Date:2012/11/20

Time: 下午 05:06:00



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 661

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3048.750	-38.36	5.47	-32.89	-13.00	-19.89	peak		

*:Maximum data x:Over limit !:over margin

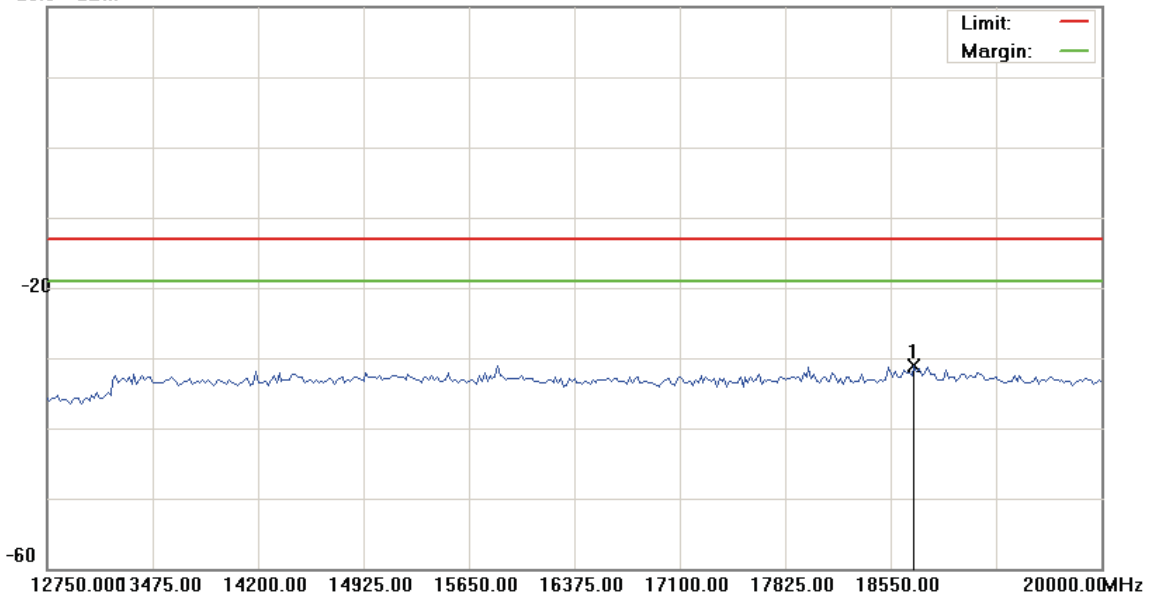
File :HE920 NA(CH661)

Data :#5

Date:2012/11/20

Time: 下午 05:06:19

20.0 dBm



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 661

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	18713.125	-38.13	7.07	-31.06	-13.00	-18.06	peak		

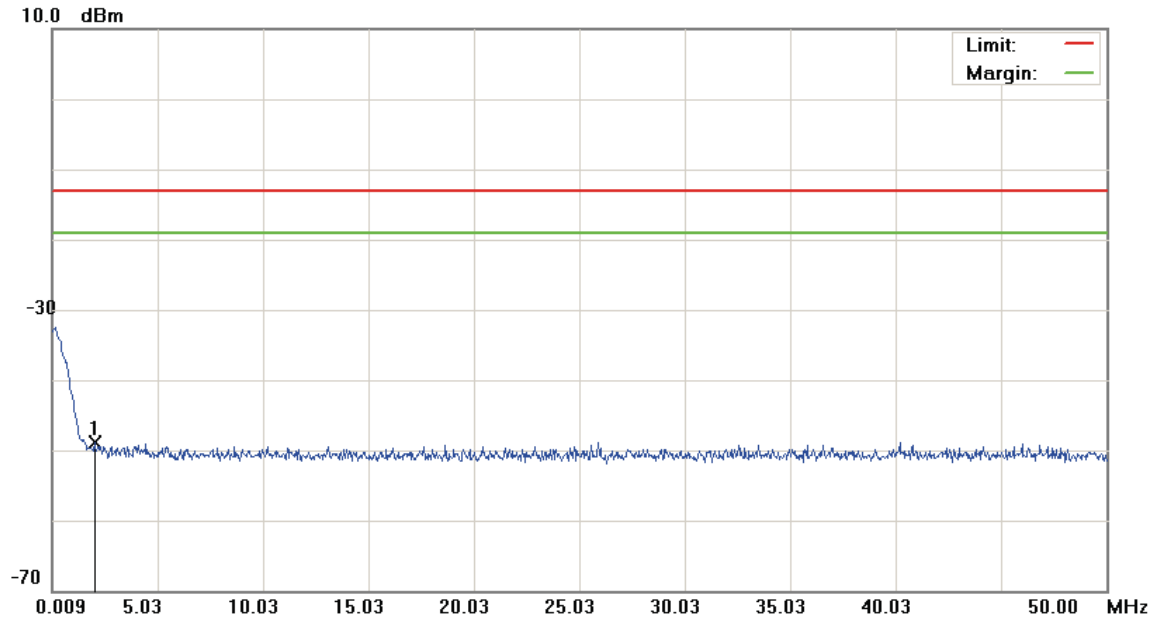
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH810)

Data :#1

Date:2012/11/20

Time: 下午 03:30:58



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 810

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.0085	-62.09	13.21	-48.88	-13.00	-35.88	peak		Comment

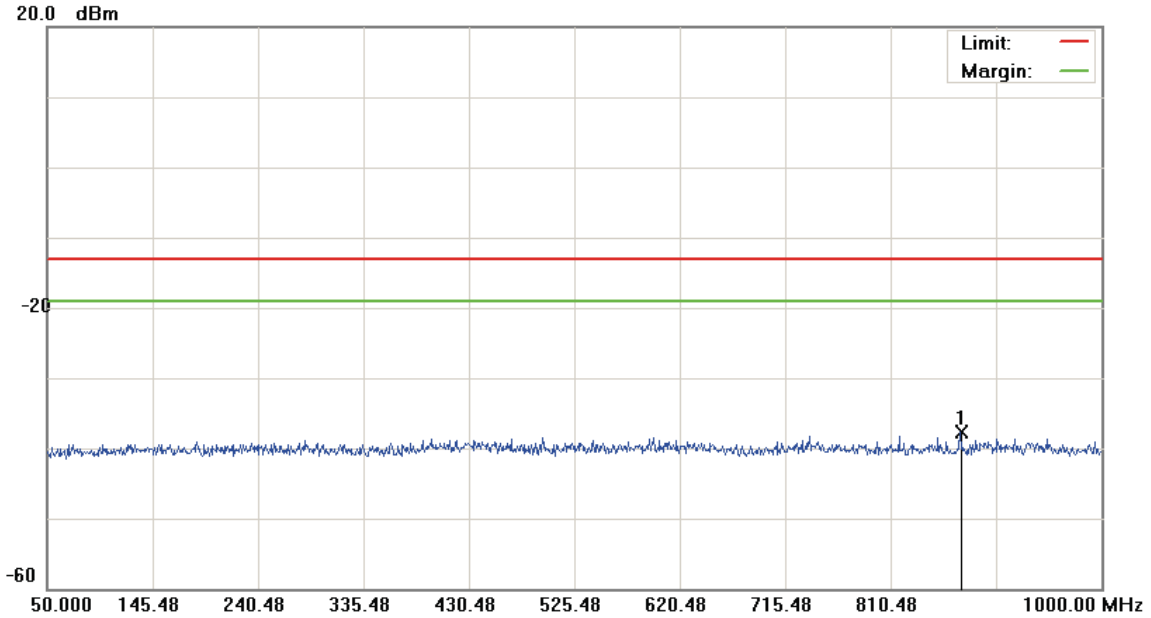
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH810)

Data :#2

Date:2012/11/20

Time: 下午 03:31:22



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 810

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	873.1750	-50.93	13.27	-37.66	-13.00	-24.66	peak		

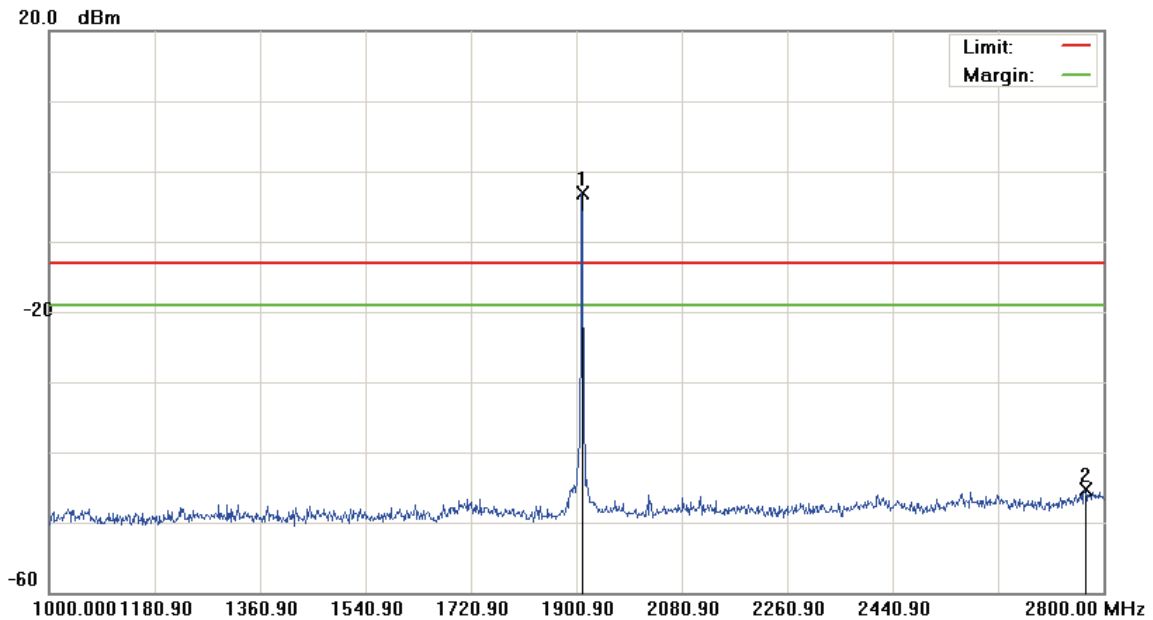
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH810)

Data :#3

Date:2012/11/20

Time: 下午 04:04:43



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 810

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1909.900	-8.71	5.71	-3.00	-13.00	10.00	peak		Tx
2		2768.500	-51.09	5.72	-45.37	-13.00	-32.37	peak		

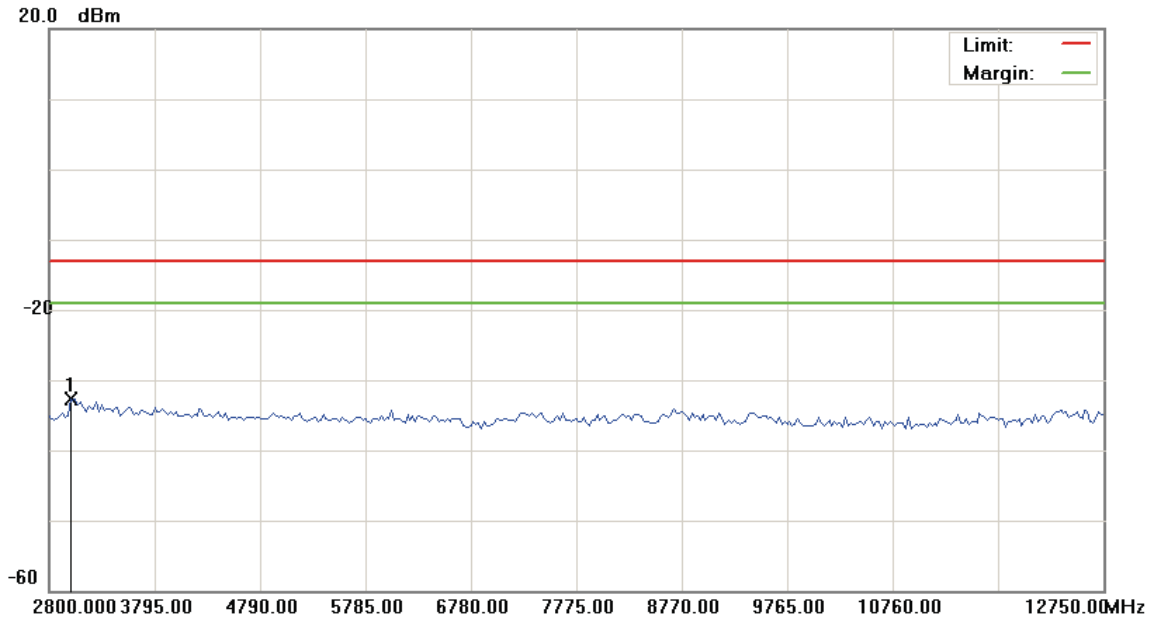
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH810)

Data :#4

Date:2012/11/20

Time: 下午 05:09:40



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 810

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2999.000	-38.20	5.48	-32.72	-13.00	-19.72	peak		

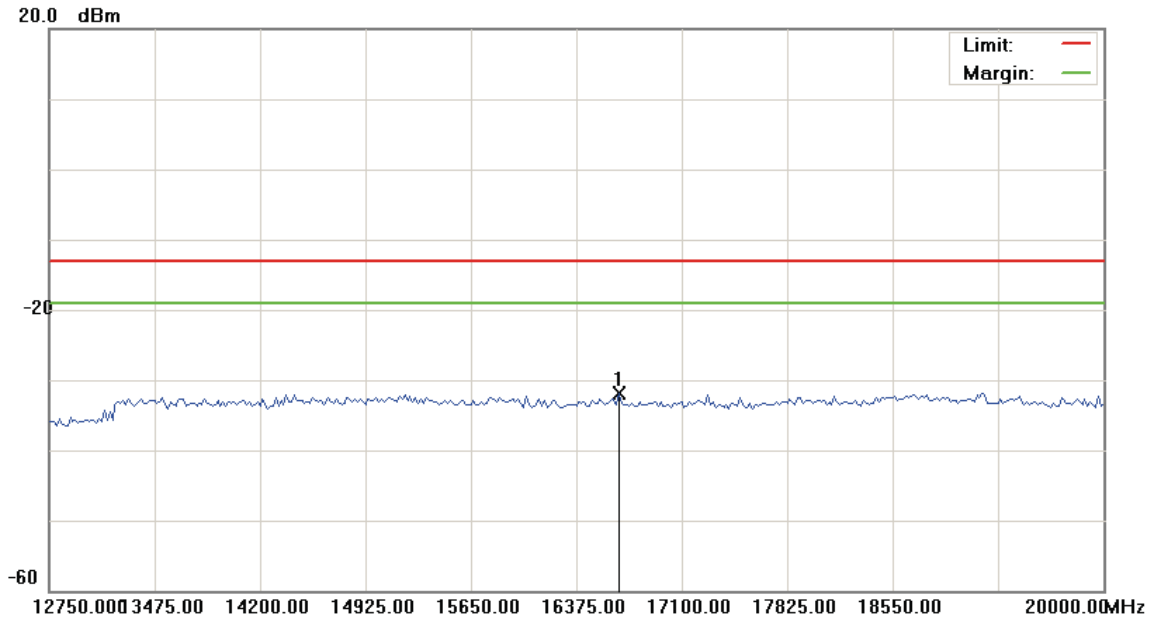
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH810)

Data :#5

Date:2012/11/20

Time: 下午 05:09:59



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: GSM 1900

Note: CH 810

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	16665.000	-38.34	6.49	-31.85	-13.00	-18.85	peak		

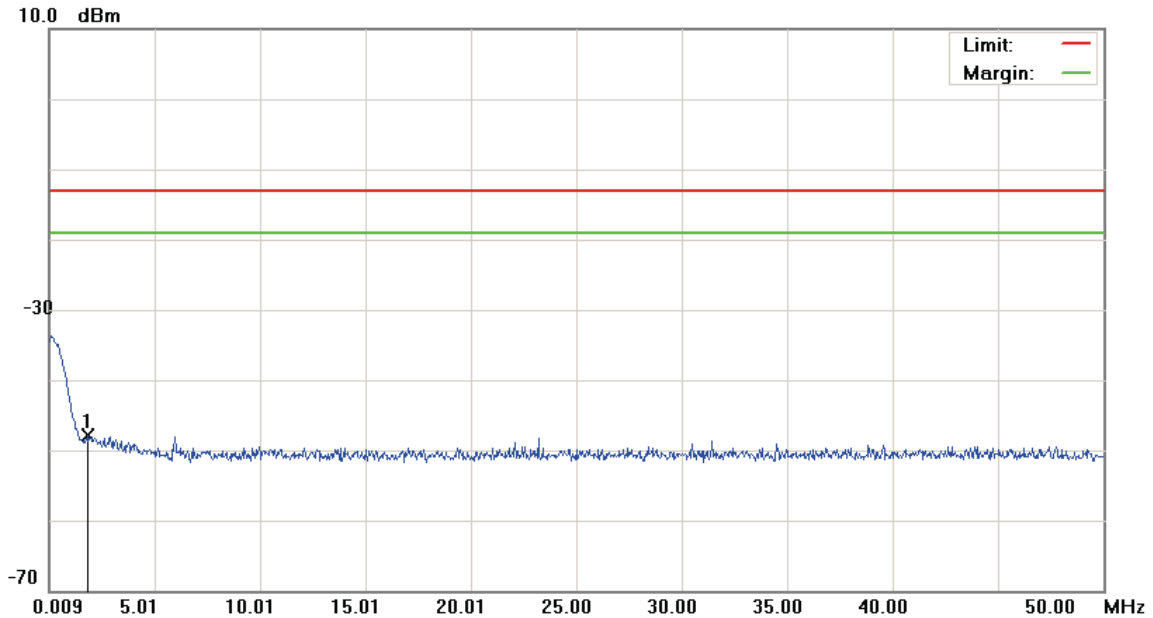
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9262)

Data :#1

Date:2012/11/20

Time: 下午 03:33:12



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9262

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	1.8587	-60.76	12.82	-47.94	-13.00	-34.94	peak		

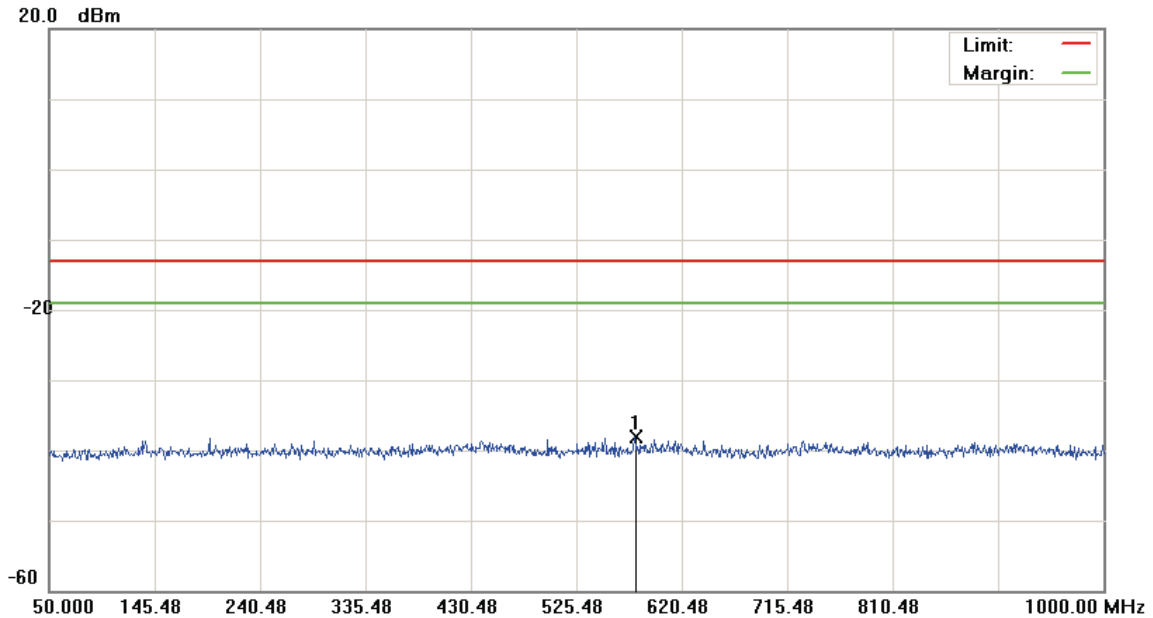
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9262)

Data :#2

Date:2012/11/20

Time: 下午 03:33:36



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9262

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	577.7250	-51.30	13.17	-38.13	-13.00	-25.13	peak		

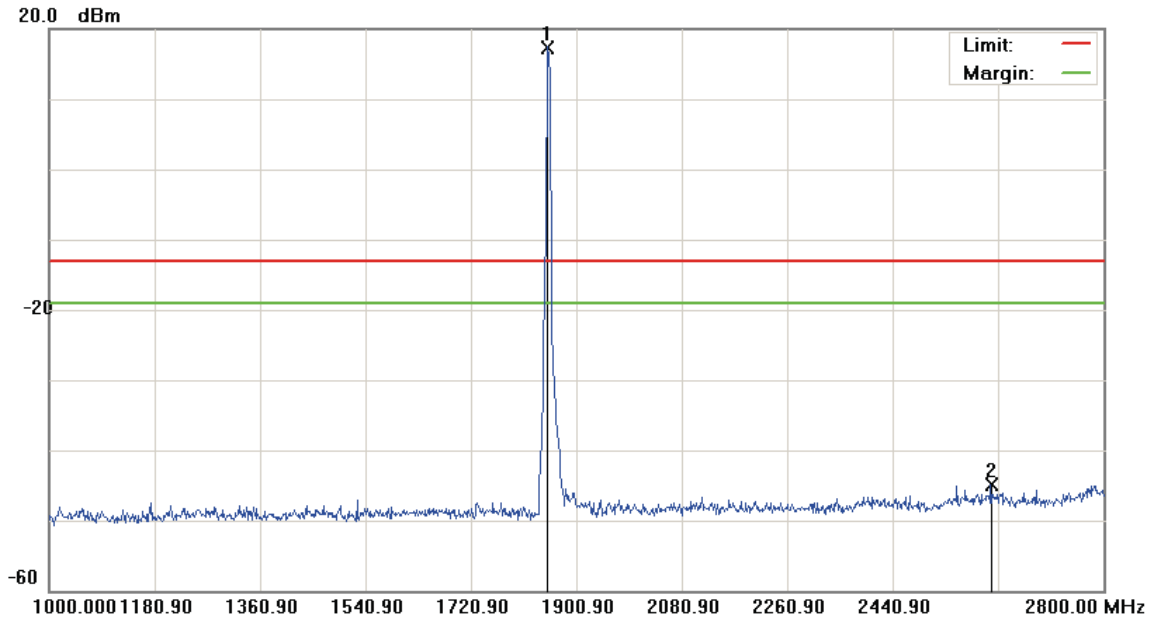
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9262)

Data :#3

Date:2012/11/20

Time: 下午 03:50:27



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9262

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1851.400	13.14	4.26	17.40	-13.00	30.40	peak		Tx
2		2608.300	-50.27	5.45	-44.82	-13.00	-31.82	peak		

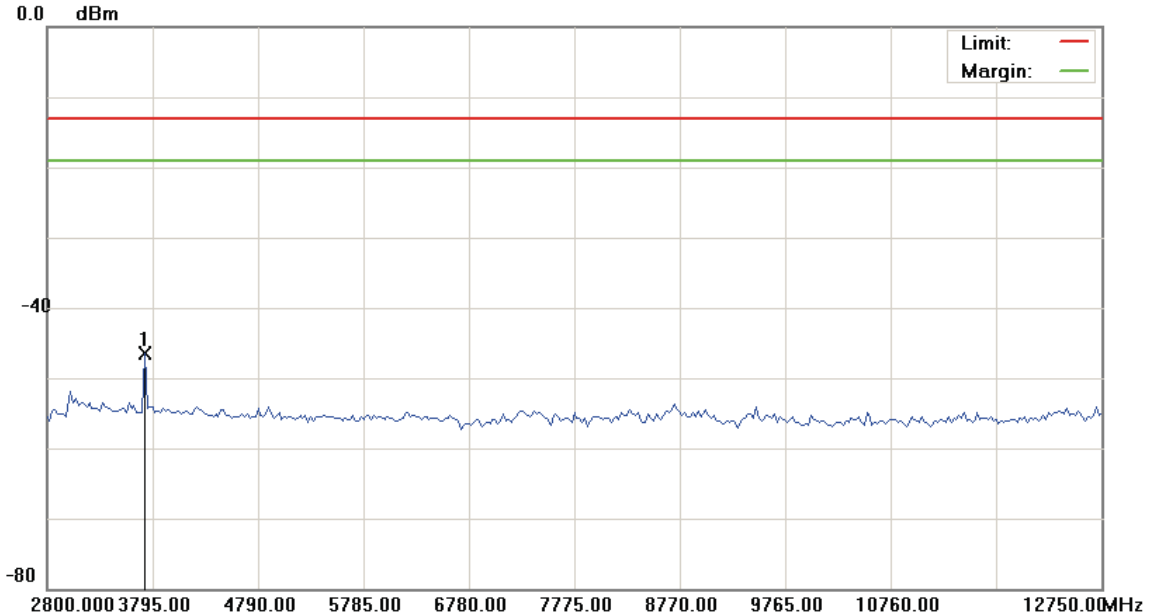
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9262)

Data :#4

Date:2012/11/20

Time: 下午 05:11:05



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9262

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3720.375	-51.35	4.88	-46.47	-13.00	-33.47	peak		

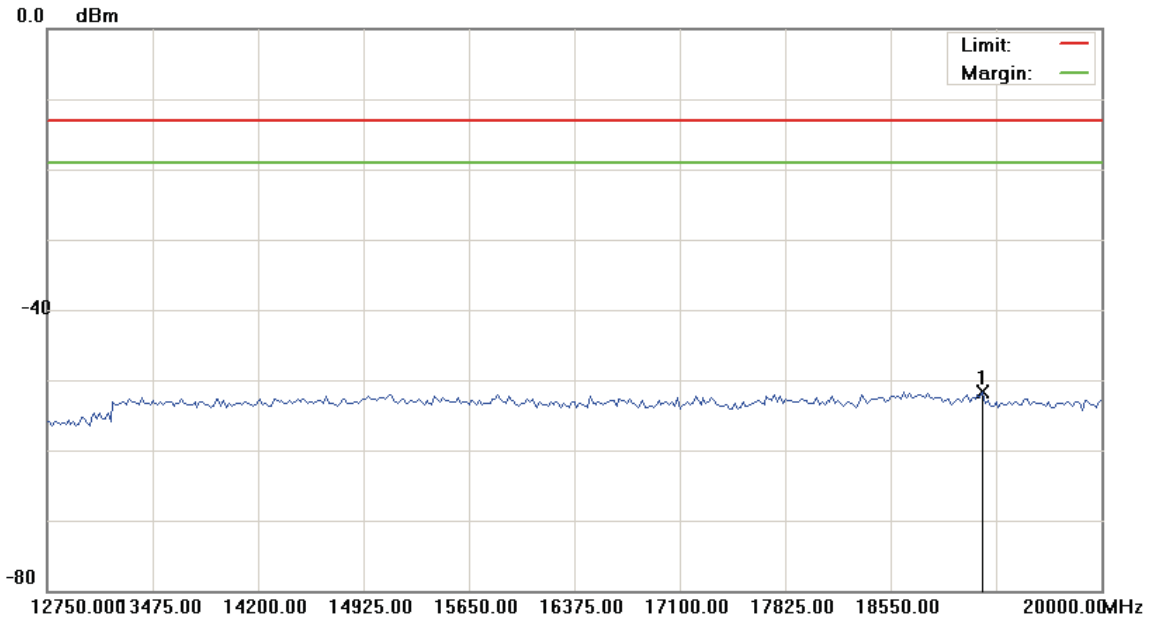
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9262)

Data :#5

Date:2012/11/20

Time: 下午 05:11:24



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9262

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19184.375	-58.87	7.21	-51.66	-13.00	-38.66	peak		

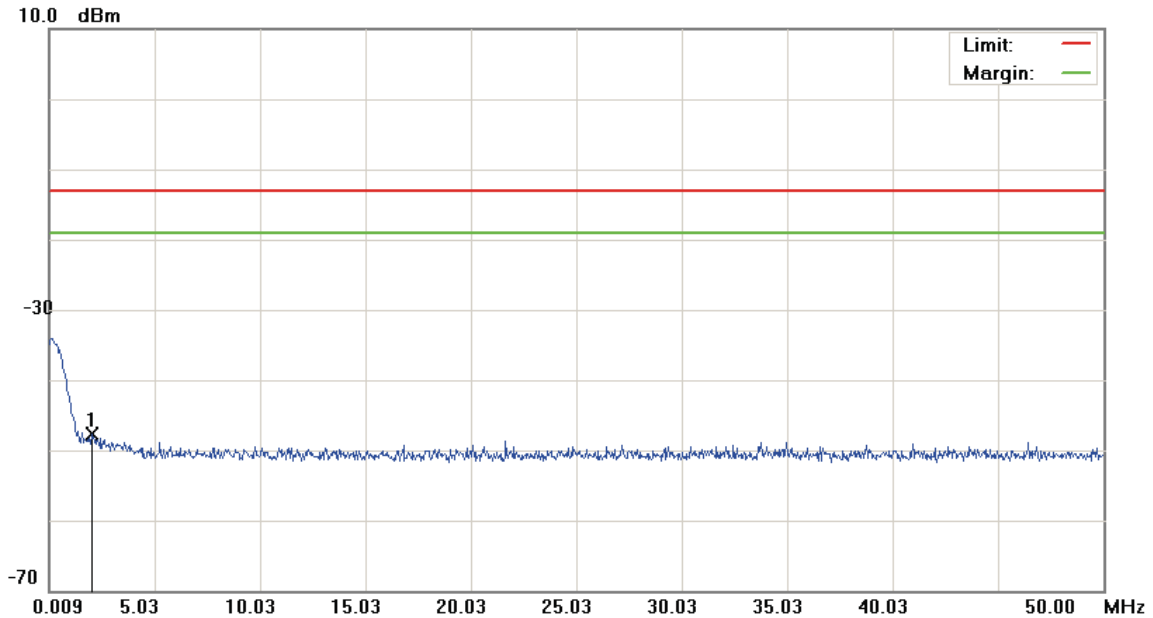
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9400)

Data :#1

Date:2012/11/20

Time: 下午 03:35:00



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9400

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2.0085	-60.96	13.21	-47.75	-13.00	-34.75	peak		

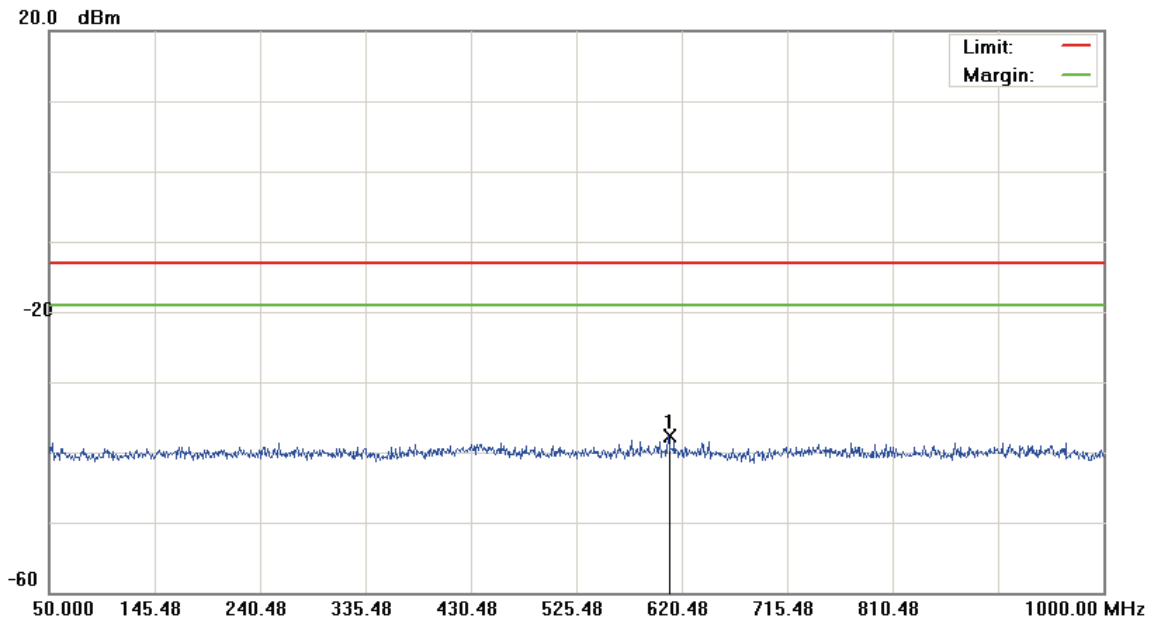
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9400)

Data :#2

Date:2012/11/20

Time: 下午 03:35:24



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9400

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	608.1250	-50.86	13.17	-37.69	-13.00	-24.69	peak		

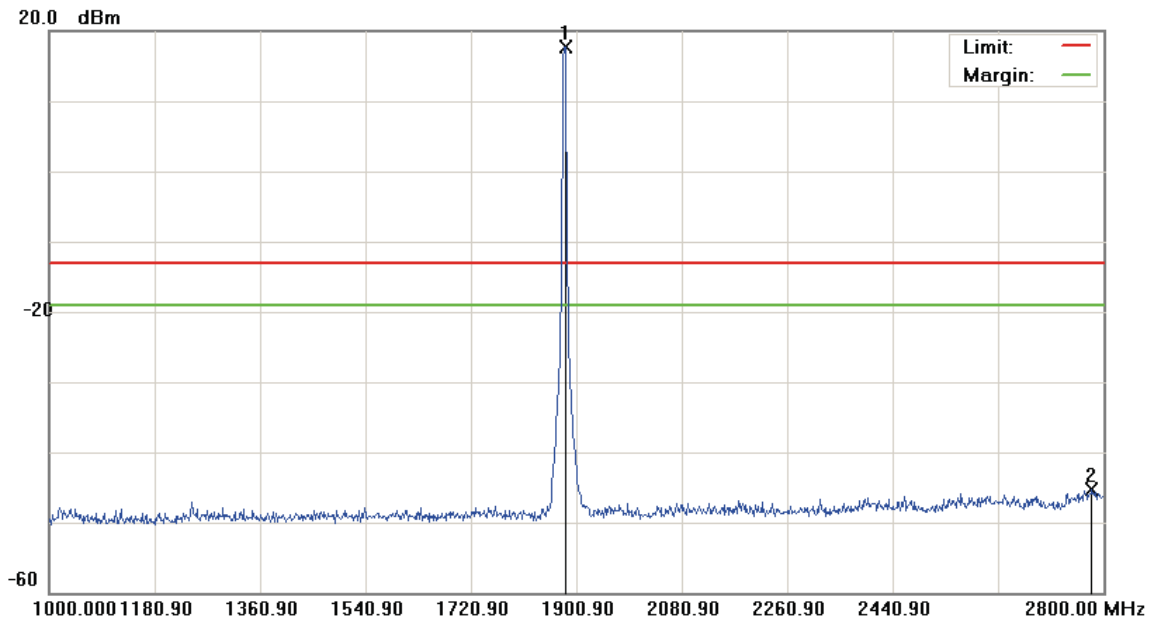
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9400)

Data :#3

Date:2012/11/20

Time: 下午 03:51:33



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9400

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1882.000	12.95	4.83	17.78	-13.00	30.78	peak		Tx
2		2780.200	-51.22	5.88	-45.34	-13.00	-32.34	peak		

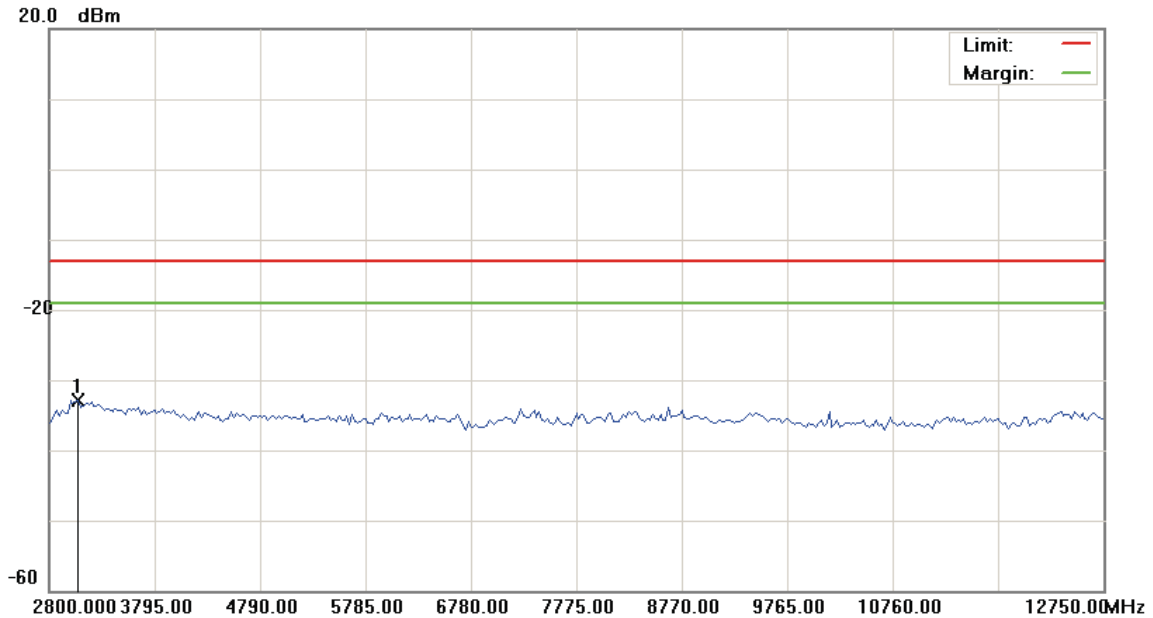
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9400)

Data :#4

Date:2012/11/20

Time: 下午 05:11:55



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9400

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3073.625	-38.23	5.40	-32.83	-13.00	-19.83	peak		

*:Maximum data x:Over limit !:over margin

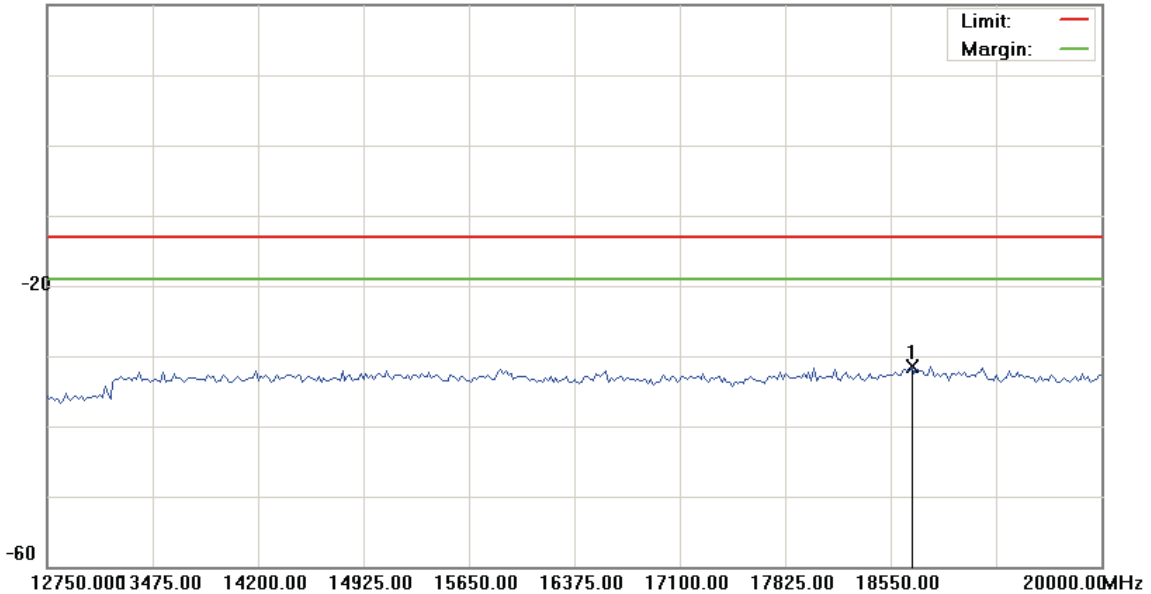
File :HE920 NA(CH9400)

Data :#5

Date:2012/11/20

Time: 下午 05:12:14

20.0 dBm



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9400

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	18695.000	-38.52	7.07	-31.45	-13.00	-18.45	peak		

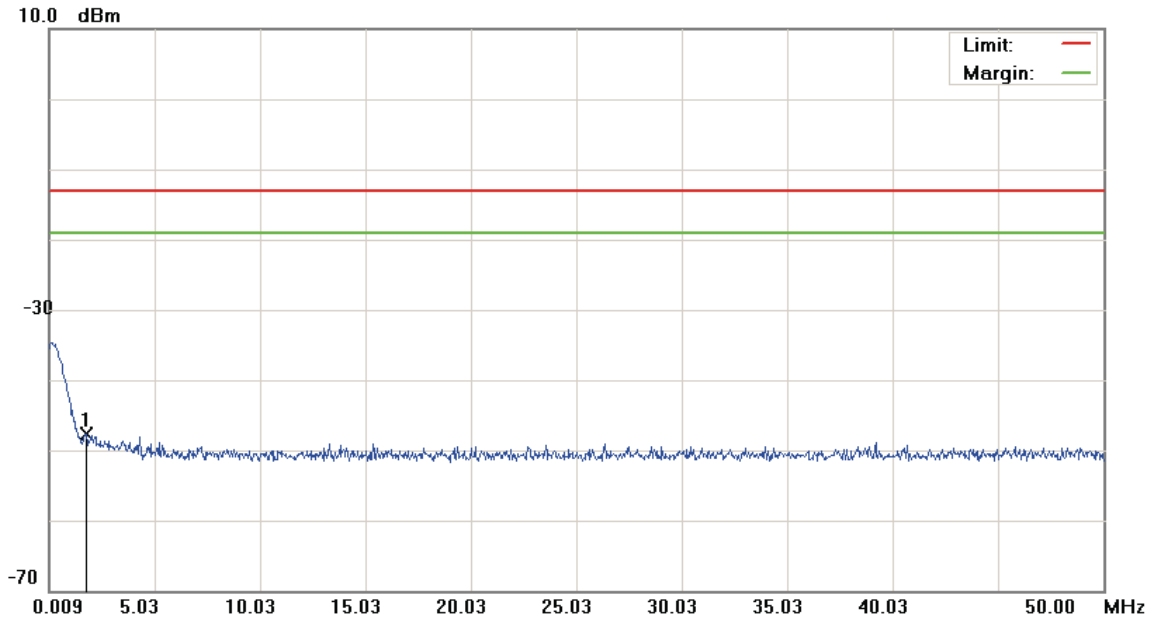
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9538)

Data :#1

Date:2012/11/20

Time: 下午 03:37:04



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9538

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1.7337	-60.36	12.60	-47.76	-13.00	-34.76	peak		

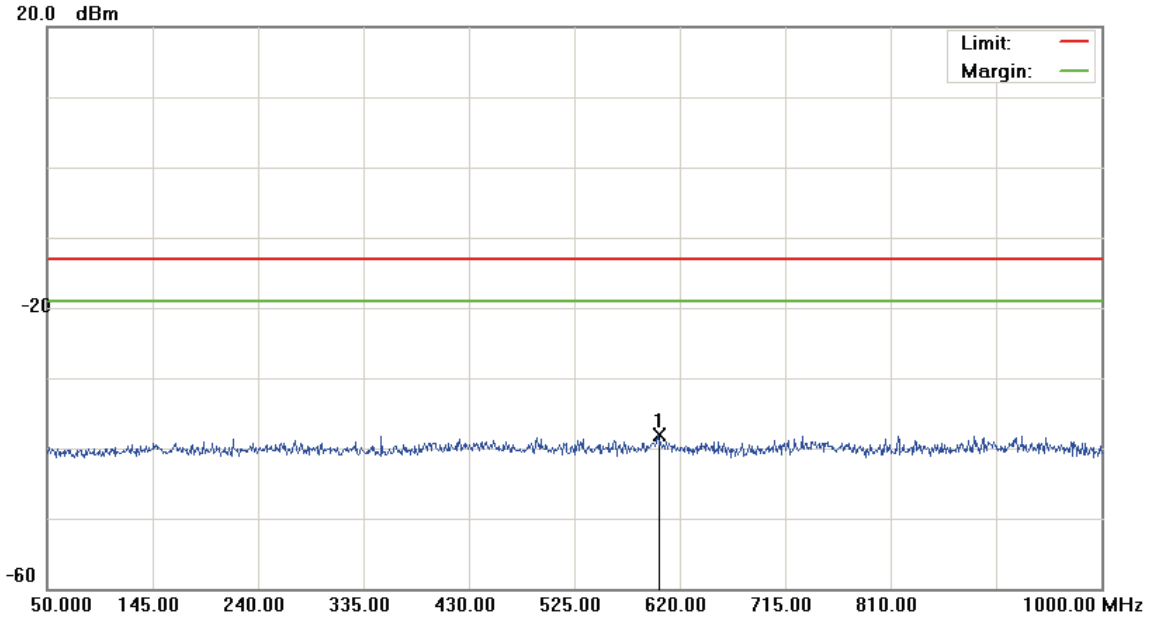
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9538)

Data :#2

Date:2012/11/20

Time: 下午 03:37:28



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9538

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	600.5250	-51.35	13.20	-38.15	-13.00	-25.15	peak		

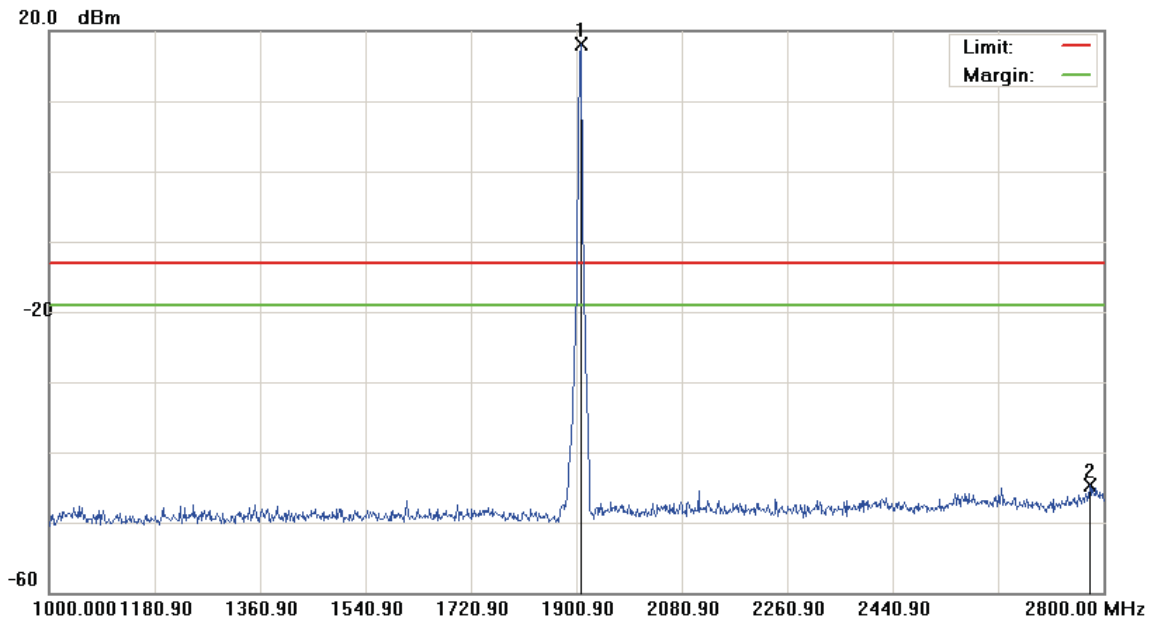
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9538)

Data :#3

Date:2012/11/20

Time: 下午 03:57:27



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9538

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1909.000	12.32	5.80	18.12	-13.00	31.12	peak		Tx
2		2776.600	-50.51	5.83	-44.68	-13.00	-31.68	peak		

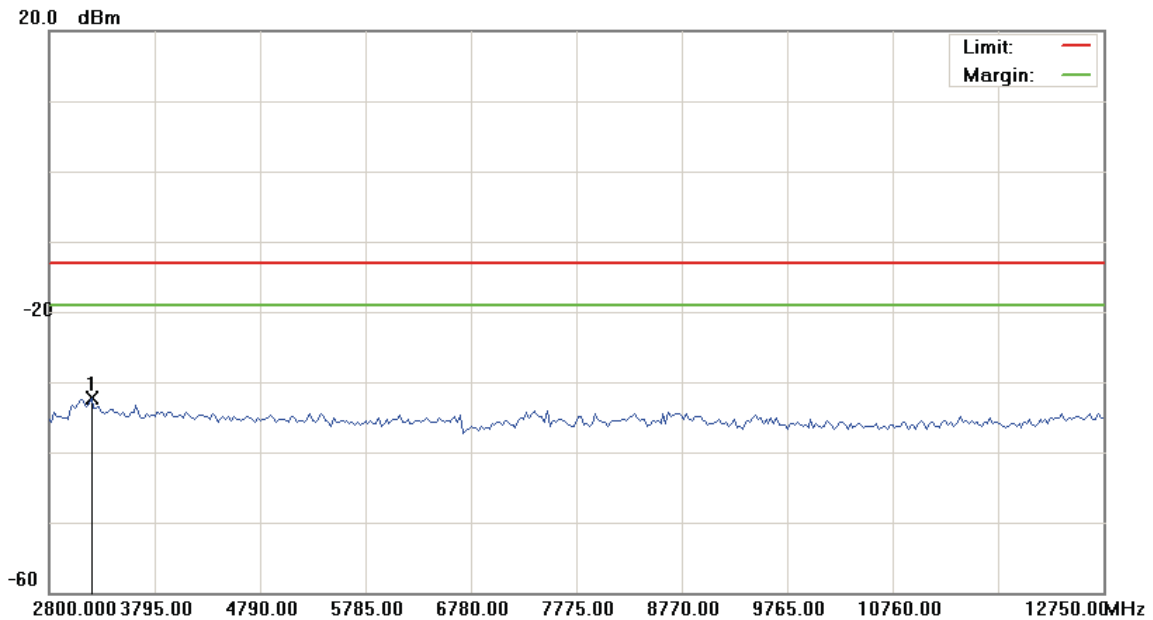
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9538)

Data :#4

Date:2012/11/20

Time: 下午 05:12:52



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9538

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3198.000	-37.60	5.22	-32.38	-13.00	-19.38	peak		

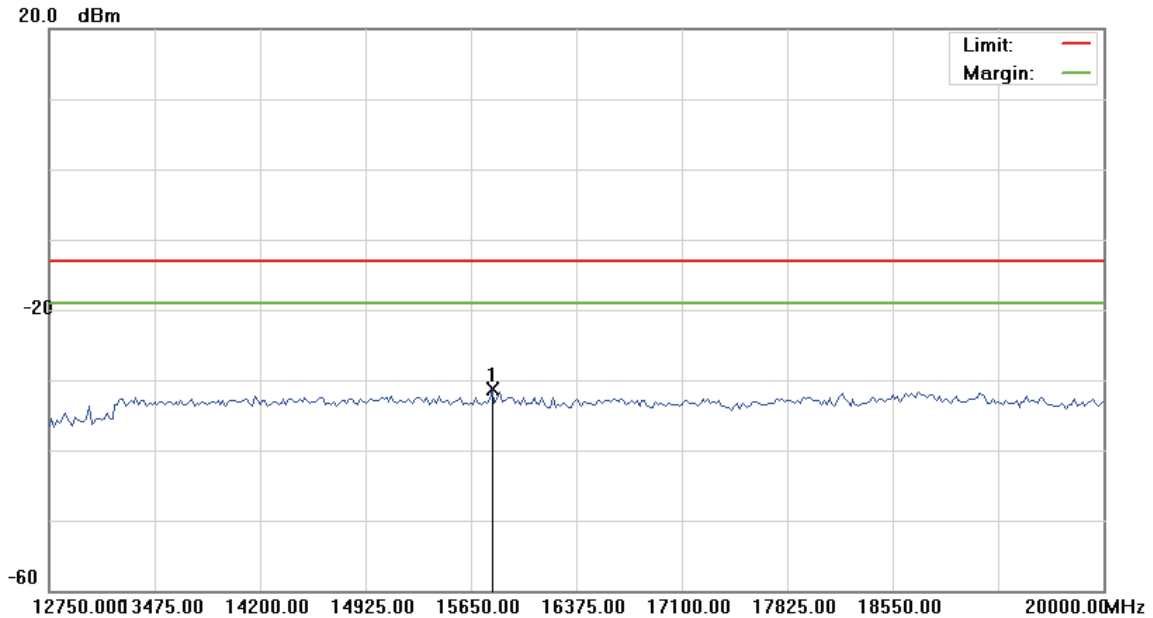
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH9538)

Data :#5

Date:2012/11/20

Time: 下午 05:13:12



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-26.5G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band II

Note: CH 9538

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	15795.000	-37.55	6.24	-31.31	-13.00	-18.31	peak		

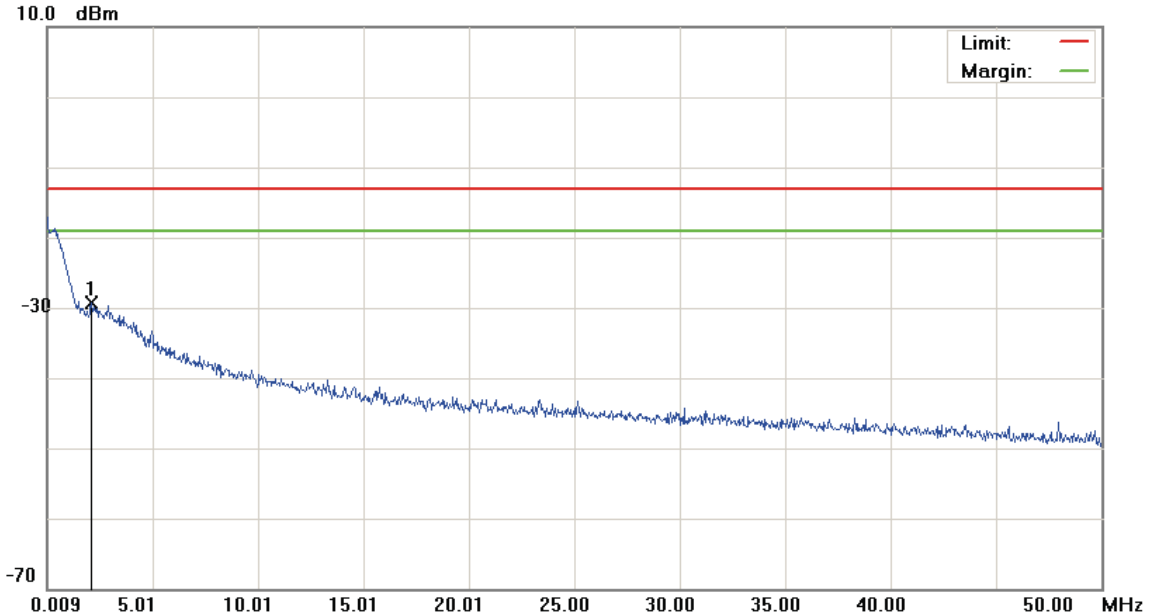
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4132)

Data :#1

Date:2012/11/20

Time: 下午 04:18:36



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4132

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.1086	-60.85	31.54	-29.31	-13.00	-16.31	peak		Comment

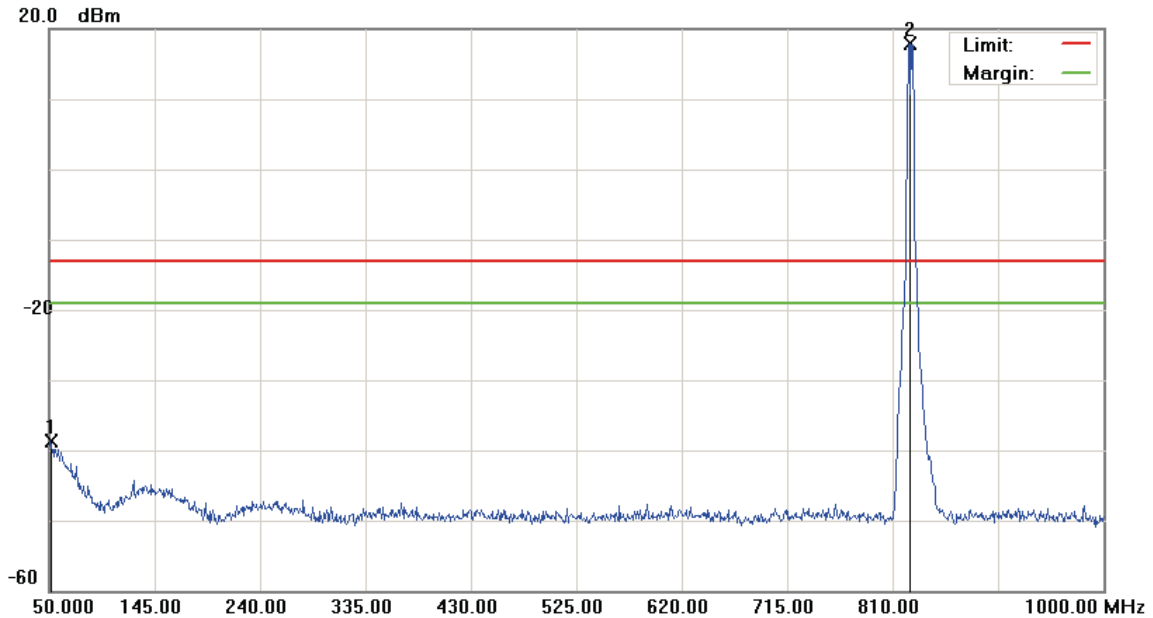
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4132)

Data :#2

Date:2012/11/20

Time: 下午 04:19:00



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4132

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1		51.4250	-53.12	14.44	-38.68	-13.00	-25.68	peak		
2	*	825.2000	14.15	3.84	17.99	-13.00	30.99	peak		Tx

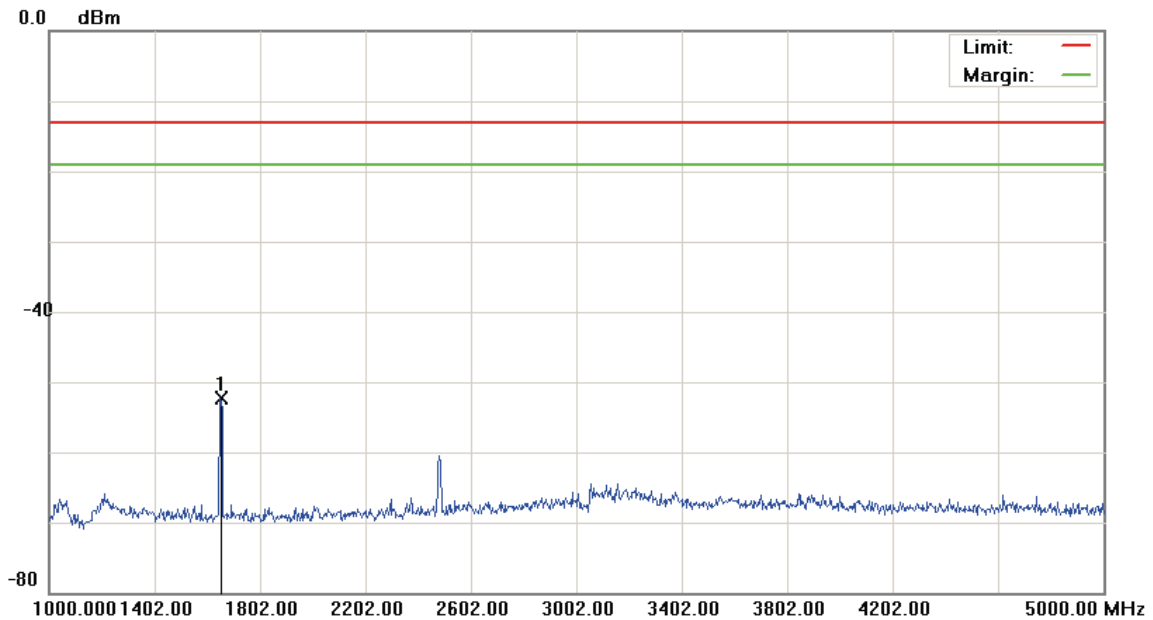
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4132)

Data :#3

Date:2012/11/20

Time: 下午 04:35:11



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4132

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1650.000	-56.78	4.45	-52.33	-13.00	-39.33	peak		

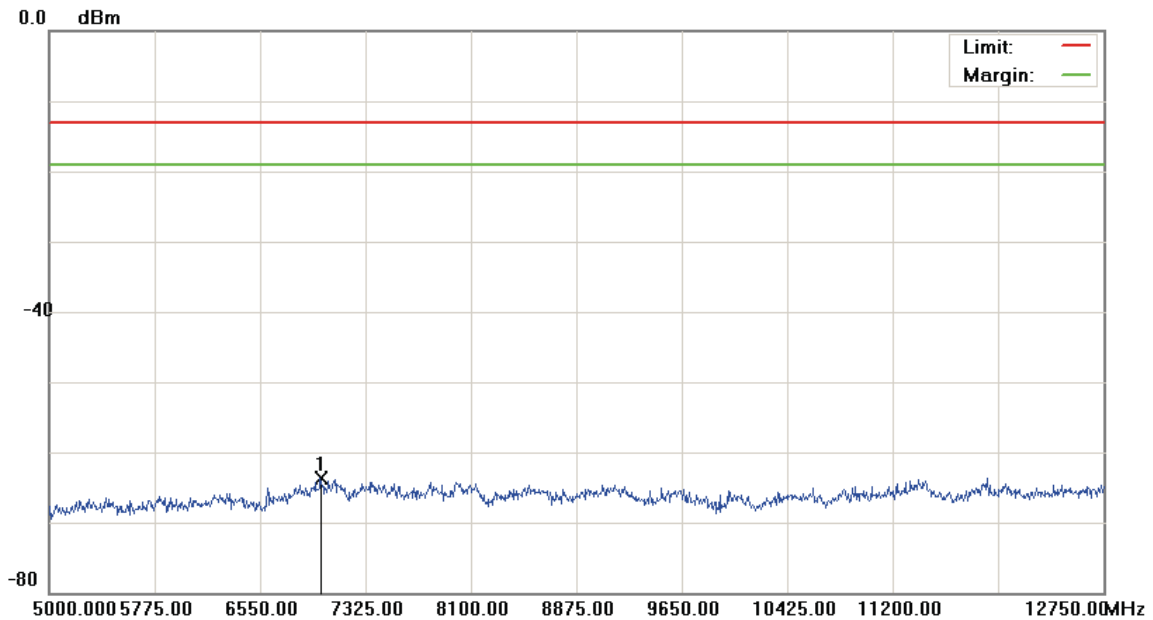
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4132)

Data :#4

Date:2012/11/20

Time: 下午 04:35:34



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4132

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	6995.625	-68.57	4.93	-63.64	-13.00	-50.64	peak		

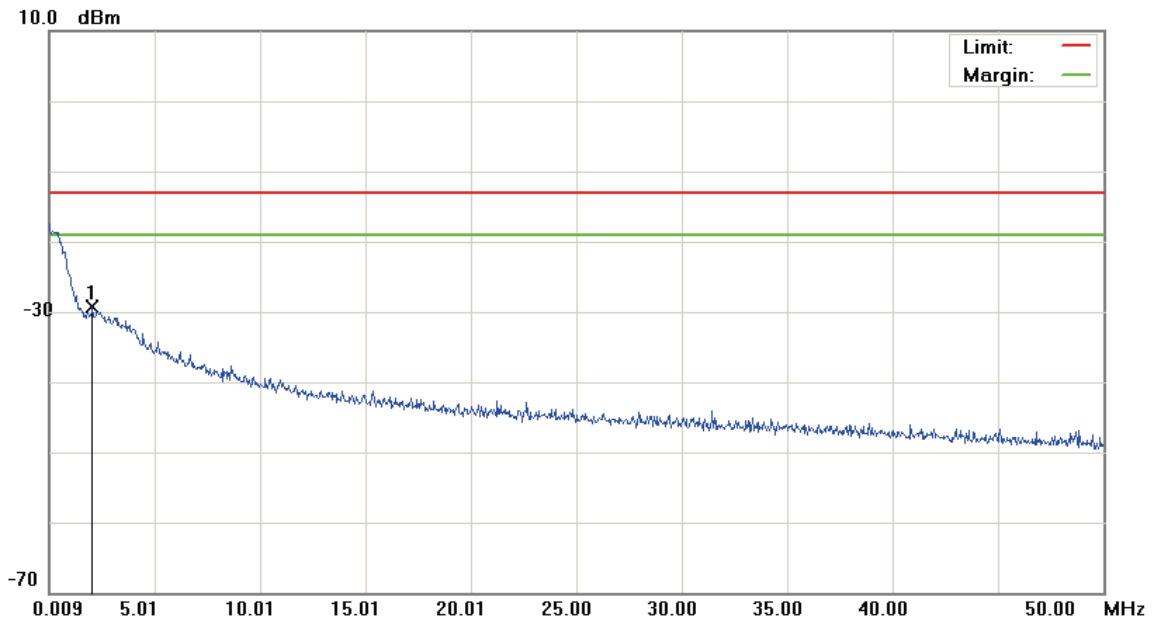
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4183)

Data :#1

Date:2012/11/20

Time: 下午 04:27:09



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4183

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.0586	-60.83	31.45	-29.38	-13.00	-16.38	peak		Comment

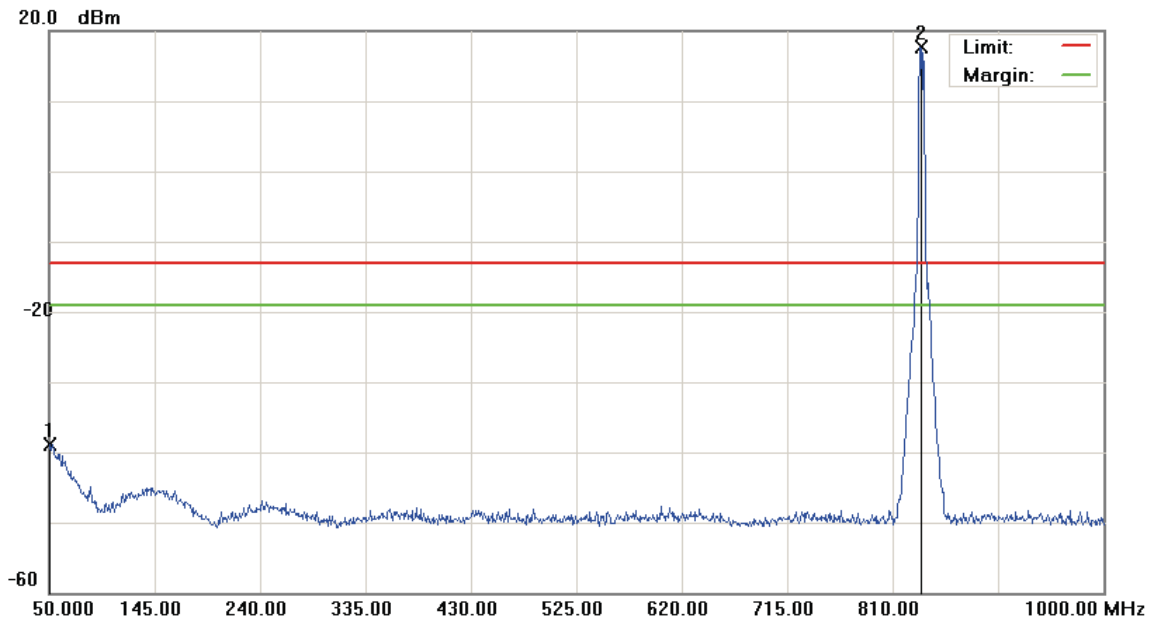
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4183)

Data :#2

Date:2012/11/20

Time: 下午 04:27:33



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4183

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		50.0000	-53.57	14.69	-38.88	-13.00	-25.88	peak			
2	*	835.1750	13.79	3.95	17.74	-13.00	30.74	peak			Tx

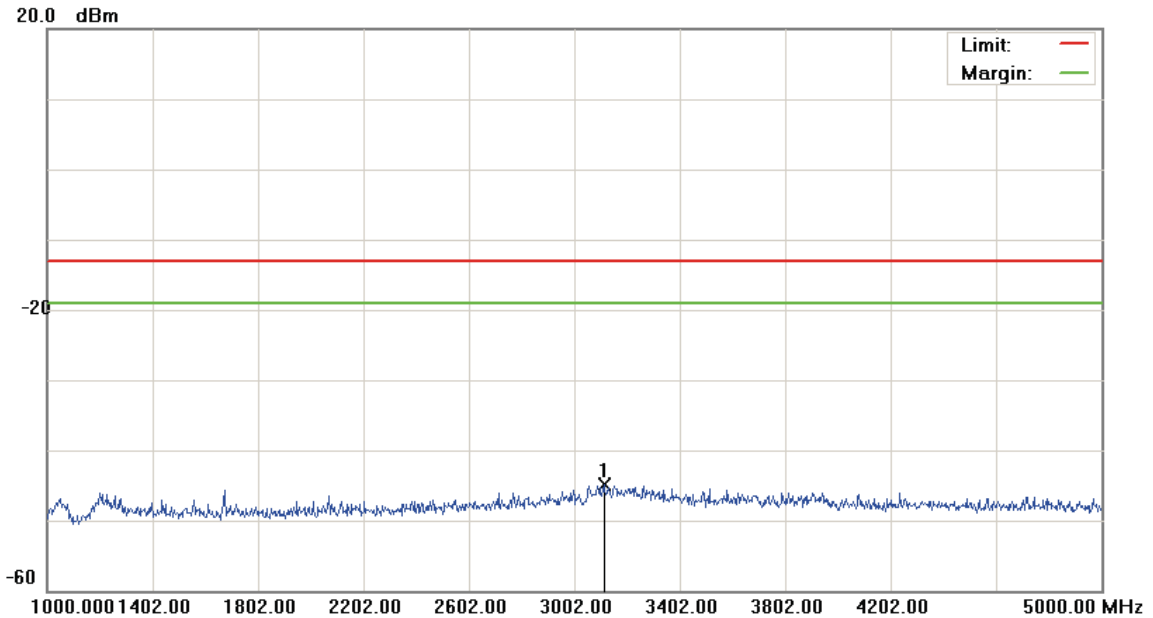
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4183)

Data :#3

Date:2012/11/20

Time: 下午 04:43:21



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4183

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3114.000	-49.50	4.56	-44.94	-13.00	-31.94	peak		

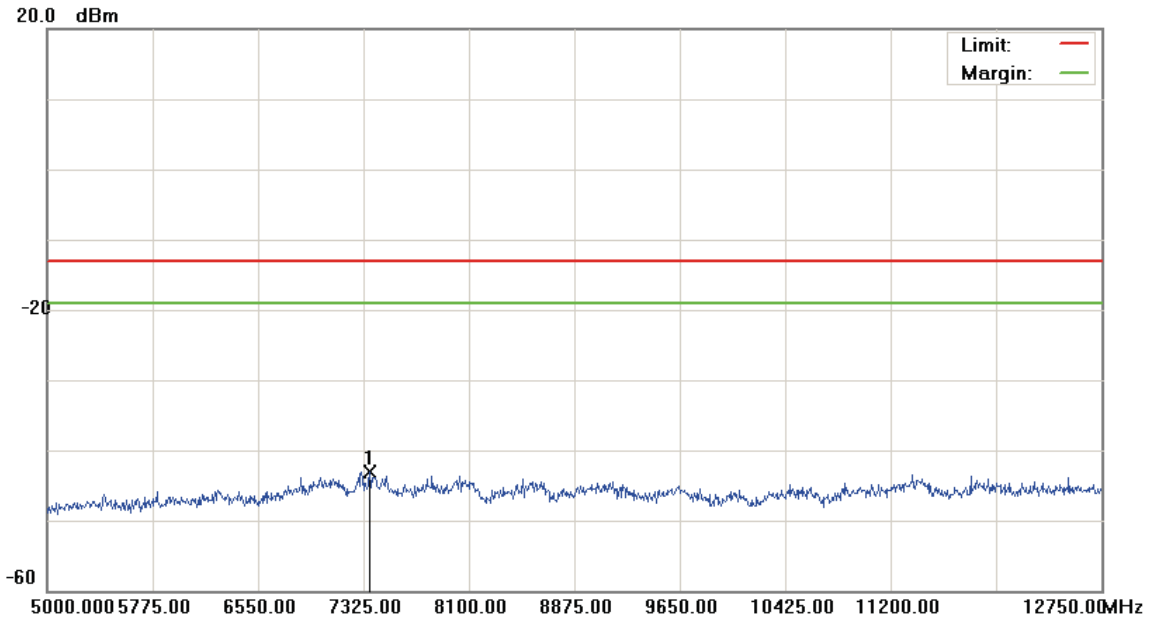
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4183)

Data :#4

Date:2012/11/20

Time: 下午 04:43:44



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4183

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	7371.500	-48.12	5.10	-43.02	-13.00	-30.02	peak		

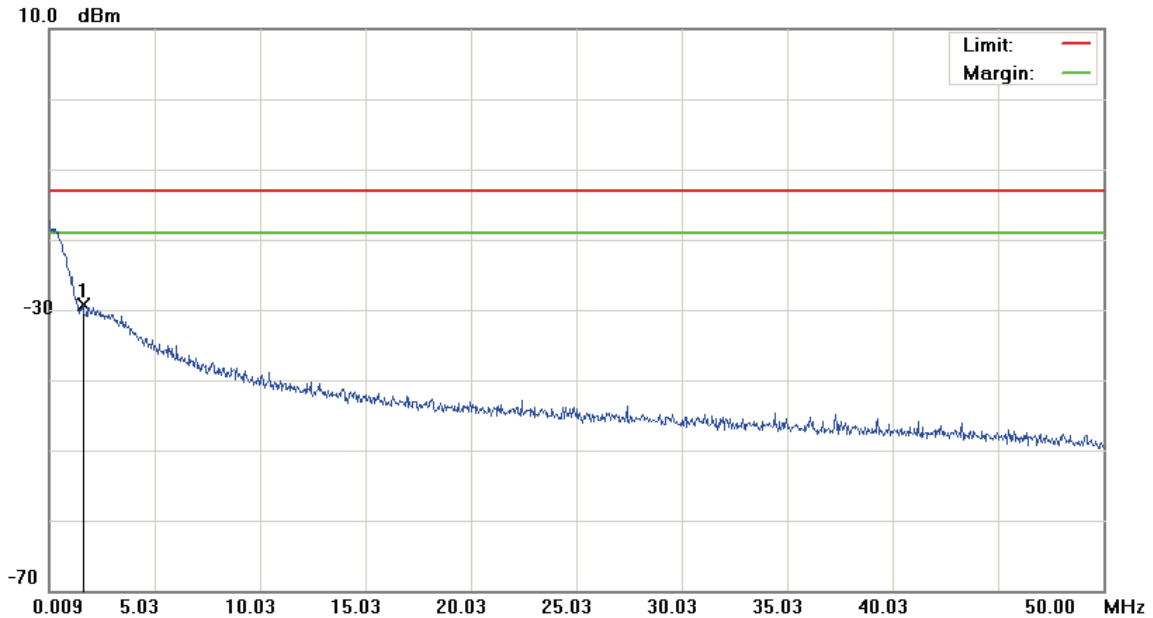
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4233)

Data :#1

Date:2012/11/20

Time: 下午 04:29:10



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4233

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1.6087	-60.45	31.21	-29.24	-13.00	-16.24	peak		

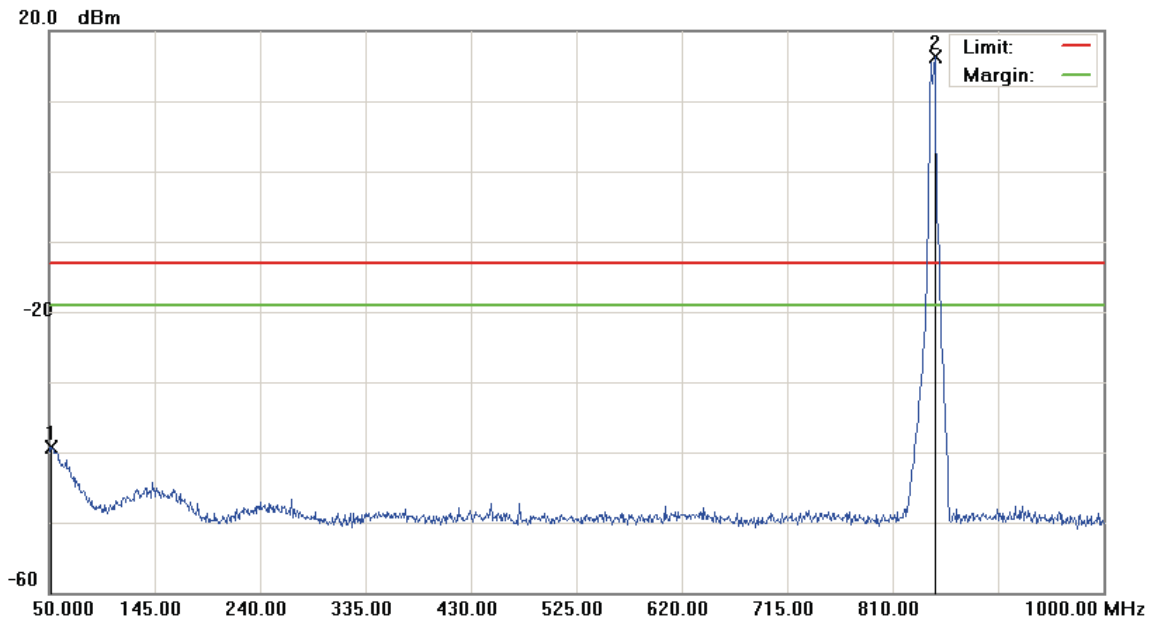
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4233)

Data :#2

Date:2012/11/20

Time: 下午 04:29:34



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4233

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1		51.9000	-53.57	14.36	-39.21	-13.00	-26.21	peak		
2	*	848.0000	12.39	3.98	16.37	-13.00	29.37	peak		Tx

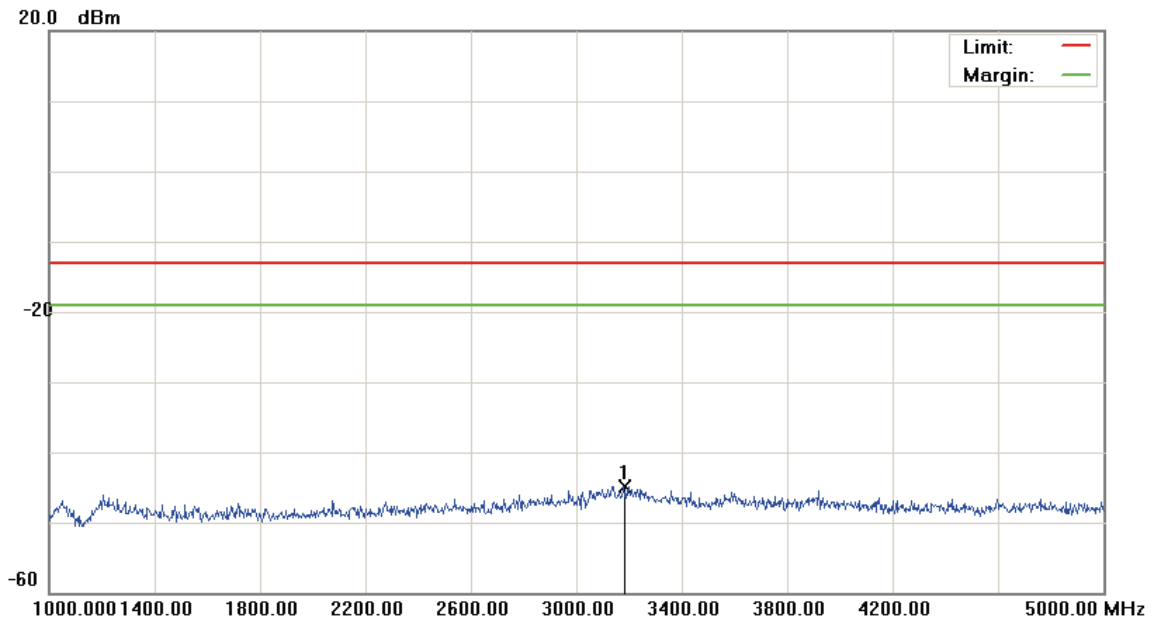
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4233)

Data :#3

Date:2012/11/20

Time: 下午 04:46:47



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4233

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3182.000	-49.48	4.62	-44.86	-13.00	-31.86	peak		

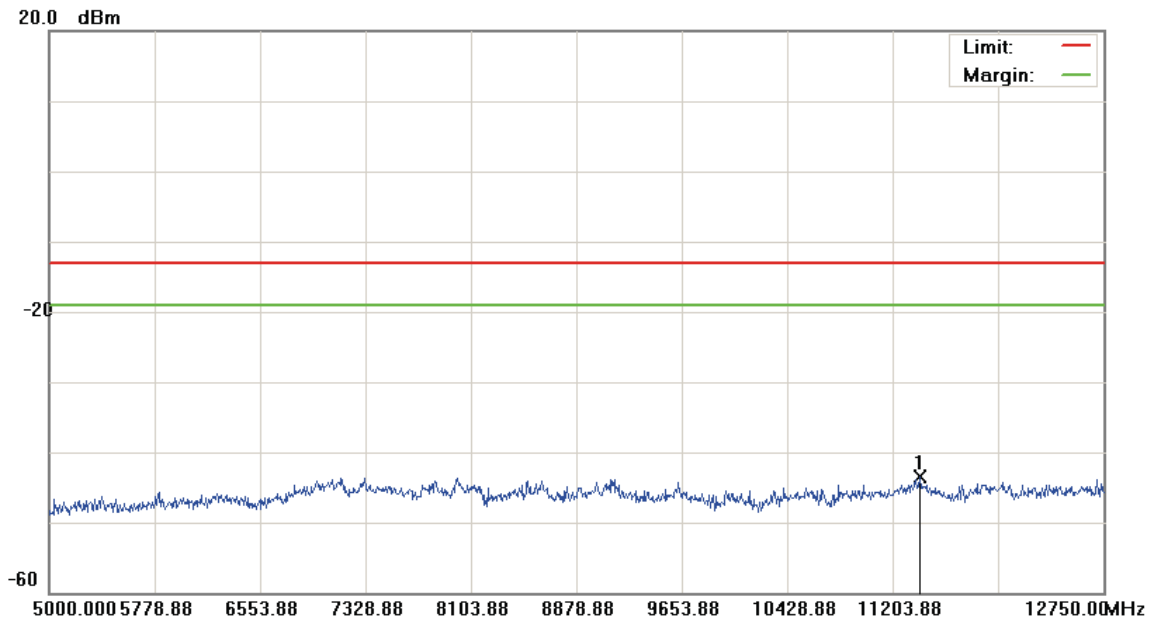
*:Maximum data x:Over limit !:over margin

File :HE920 NA(CH4233)

Data :#4

Date:2012/11/20

Time: 下午 04:47:10



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 22 conducted(9k-12.75G)

Power: DC 3.8V

Humidity: 55.2 %

EUT: Wireless module

Distance:

RBW: 1000 KHz VBW: 1000 KHz

M/N: HE920-NA

Mode: WCDMA Band V

Note: CH 4233

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	11401.500	-49.05	5.56	-43.49	-13.00	-30.49	peak		

*:Maximum data x:Over limit !:over margin

7 Field Strength of Spurious Radiation Test

7.1. Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

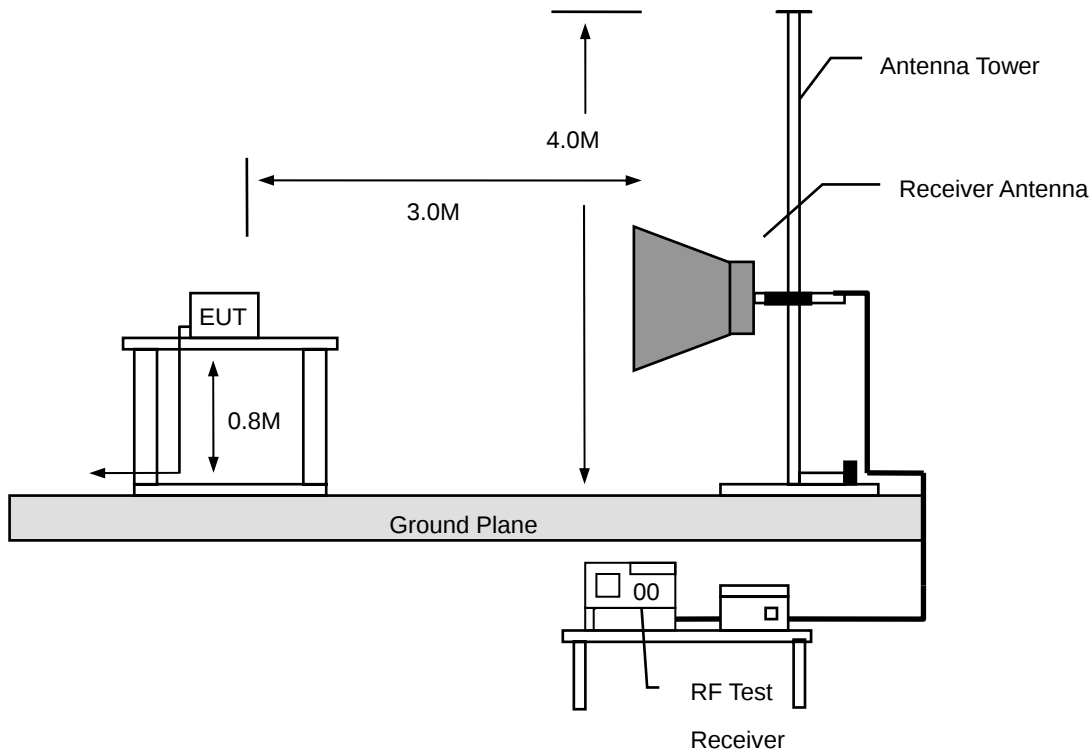
7.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/21/2013	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/21/2013	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/22/2012	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/22/2012	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	06/29/2012	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/15/2012	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/21/2012	(1)
Test Site	ATL	TE01	888001	12/20/2011	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

7.3. Setup



7.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) $\text{Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) $\text{Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

7.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is ± 3.072 dB.

7.6. Test Result

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	1	Date:	01/30/2013
Frequency:	824.2 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
115.5000	-68.48	-5.18	-73.66	-13.00	-60.66	peak	H
234.0000	-66.35	-1.38	-67.73	-13.00	-54.73	peak	H
430.0000	-72.11	3.67	-68.44	-13.00	-55.44	peak	H
590.5000	-77.30	7.77	-69.53	-13.00	-56.53	peak	H
709.0000	-61.96	7.20	-54.76	-13.00	-41.76	peak	H
950.0000	-80.03	14.86	-65.17	-13.00	-52.17	peak	H
2404.000	-68.87	15.96	-52.91	-13.00	-39.91	peak	H
5164.000	-72.74	24.52	-48.22	-13.00	-35.22	peak	H
7504.000	-71.37	33.78	-37.59	-13.00	-24.59	peak	H
103.0000	-73.31	-1.84	-75.15	-13.00	-62.15	peak	V
260.0000	-65.24	-1.56	-66.80	-13.00	-53.80	peak	V
390.0000	-69.18	1.49	-67.69	-13.00	-54.69	peak	V
520.0000	-78.11	3.11	-75.00	-13.00	-62.00	peak	V
651.5000	-74.89	9.07	-65.82	-13.00	-52.82	peak	V
807.5000	-78.43	11.64	-66.79	-13.00	-53.79	peak	V
2788.000	-67.57	18.70	-48.87	-13.00	-35.87	peak	V
5236.000	-71.74	27.46	-44.28	-13.00	-31.28	peak	V
7312.000	-71.47	30.89	-40.58	-13.00	-27.58	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	1	Date:	01/30/2013
Frequency:	836.6 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
115.5000	-72.59	-5.18	-77.77	-13.00	-64.77	peak	H
269.0000	-68.56	-4.34	-72.90	-13.00	-59.90	peak	H
430.0000	-70.96	3.67	-67.29	-13.00	-54.29	peak	H
568.0000	-76.93	7.73	-69.20	-13.00	-56.20	peak	H
675.5000	-76.68	7.04	-69.64	-13.00	-56.64	peak	H
952.0000	-71.76	14.85	-56.91	-13.00	-43.91	peak	H
2428.000	-68.89	16.08	-52.81	-13.00	-39.81	peak	H
5260.000	-72.59	24.95	-47.64	-13.00	-34.64	peak	H
7648.000	-71.08	33.75	-37.33	-13.00	-24.33	peak	H
129.0000	-73.78	13.37	-60.41	-13.00	-47.41	peak	V
234.0000	-68.04	1.48	-66.56	-13.00	-53.56	peak	V
390.0000	-67.97	1.49	-66.48	-13.00	-53.48	peak	V
520.0000	-76.52	3.11	-73.41	-13.00	-60.41	peak	V
683.0000	-73.73	9.65	-64.08	-13.00	-51.08	peak	V
952.0000	-75.81	12.53	-63.28	-13.00	-50.28	peak	V
2836.000	-69.23	19.05	-50.18	-13.00	-37.18	peak	V
5248.000	-72.74	27.47	-45.27	-13.00	-32.27	peak	V
7300.000	-73.16	30.88	-42.28	-13.00	-29.28	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	1	Date:	01/30/2013
Frequency:	848.8 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
126.0000	-66.56	-5.04	-71.60	-13.00	-58.60	peak	H
260.0000	-60.71	-4.34	-65.05	-13.00	-52.05	peak	H
410.0000	-74.48	3.00	-71.48	-13.00	-58.48	peak	H
533.5000	-78.52	8.05	-70.47	-13.00	-57.47	peak	H
676.0000	-76.56	7.05	-69.51	-13.00	-56.51	peak	H
824.0000	-77.09	11.95	-65.14	-13.00	-52.14	peak	H
2332.000	-68.64	15.55	-53.09	-13.00	-40.09	peak	H
5116.000	-72.24	24.28	-47.96	-13.00	-34.96	peak	H
7564.000	-73.29	33.77	-39.52	-13.00	-26.52	peak	H
130.0000	-73.33	14.37	-58.96	-13.00	-45.96	peak	V
260.0000	-64.82	-1.56	-66.38	-13.00	-53.38	peak	V
400.0000	-76.63	1.33	-75.30	-13.00	-62.30	peak	V
552.5000	-79.85	4.32	-75.53	-13.00	-62.53	peak	V
676.0000	-70.48	9.53	-60.95	-13.00	-47.95	peak	V
947.0000	-80.06	12.61	-67.45	-13.00	-54.45	peak	V
2548.000	-69.41	16.97	-52.44	-13.00	-39.44	peak	V
5200.000	-71.93	27.40	-44.53	-13.00	-31.53	peak	V
7648.000	-71.90	30.89	-41.01	-13.00	-28.01	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	2	Date:	01/30/2013
Frequency:	1850.2 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
84.0000	-68.24	-2.07	-70.31	-13.00	-57.31	peak	H
234.0000	-67.29	-1.38	-68.67	-13.00	-55.67	peak	H
430.0000	-72.17	3.67	-68.50	-13.00	-55.50	peak	H
598.0000	-78.27	7.90	-70.37	-13.00	-57.37	peak	H
728.0000	-75.32	7.78	-67.54	-13.00	-54.54	peak	H
920.0000	-80.12	14.74	-65.38	-13.00	-52.38	peak	H
2800.000	-68.74	17.24	-51.50	-13.00	-38.50	peak	H
5380.000	-73.16	25.50	-47.66	-13.00	-34.66	peak	H
7504.000	-73.29	33.78	-39.51	-13.00	-26.51	peak	H
126.0000	-71.18	10.40	-60.78	-13.00	-47.78	peak	V
234.0000	-68.37	1.48	-66.89	-13.00	-53.89	peak	V
370.0000	-74.49	2.03	-72.46	-13.00	-59.46	peak	V
520.0000	-76.72	3.11	-73.61	-13.00	-60.61	peak	V
680.0000	-76.84	9.56	-67.28	-13.00	-54.28	peak	V
840.0000	-79.10	11.35	-67.75	-13.00	-54.75	peak	V
3040.000	-69.51	20.46	-49.05	-13.00	-36.05	peak	V
5200.000	-73.05	27.40	-45.65	-13.00	-32.65	peak	V
7648.000	-70.69	30.89	-39.80	-13.00	-26.80	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	2	Date:	01/30/2013
Frequency:	1880.0 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
126.0000	-66.75	-5.04	-71.79	-13.00	-58.79	peak	H
234.0000	-67.52	-1.38	-68.90	-13.00	-55.90	peak	H
458.0000	-74.20	4.55	-69.65	-13.00	-56.65	peak	H
598.0000	-78.44	7.90	-70.54	-13.00	-57.54	peak	H
720.0000	-77.41	7.49	-69.92	-13.00	-56.92	peak	H
875.0000	-80.26	13.16	-67.10	-13.00	-54.10	peak	H
2836.000	-69.53	17.33	-52.20	-13.00	-39.20	peak	H
5284.000	-72.45	25.07	-47.38	-13.00	-34.38	peak	H
7600.000	-72.22	33.76	-38.46	-13.00	-25.46	peak	H
126.0000	-73.53	10.40	-63.13	-13.00	-50.13	peak	V
234.0000	-68.37	1.48	-66.89	-13.00	-53.89	peak	V
400.0000	-76.85	1.33	-75.52	-13.00	-62.52	peak	V
546.0000	-79.28	4.29	-74.99	-13.00	-61.99	peak	V
744.5000	-78.62	10.60	-68.02	-13.00	-55.02	peak	V
895.0000	-80.47	10.67	-69.80	-13.00	-56.80	peak	V
3220.000	-69.36	21.50	-47.86	-13.00	-34.86	peak	V
5344.000	-71.77	27.62	-44.15	-13.00	-31.15	peak	V
7264.000	-72.98	30.83	-42.15	-13.00	-29.15	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	2	Date:	01/30/2013
Frequency:	1909.8 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
84.0000	-69.95	-2.07	-72.02	-13.00	-59.02	peak	H
234.0000	-66.48	-1.38	-67.86	-13.00	-54.86	peak	H
410.0000	-72.74	3.00	-69.74	-13.00	-56.74	peak	H
598.0000	-78.97	7.90	-71.07	-13.00	-58.07	peak	H
741.0000	-77.55	8.24	-69.31	-13.00	-56.31	peak	H
920.0000	-80.76	14.74	-66.02	-13.00	-53.02	peak	H
3124.000	-68.66	18.08	-50.58	-13.00	-37.58	peak	H
5308.000	-72.83	25.17	-47.66	-13.00	-34.66	peak	H
7780.000	-72.76	33.72	-39.04	-13.00	-26.04	peak	H
126.0000	-71.43	10.40	-61.03	-13.00	-48.03	peak	V
234.0000	-68.11	1.48	-66.63	-13.00	-53.63	peak	V
370.0000	-75.91	2.03	-73.88	-13.00	-60.88	peak	V
538.0000	-78.07	4.14	-73.93	-13.00	-60.93	peak	V
744.5000	-79.38	10.60	-68.78	-13.00	-55.78	peak	V
882.0000	-80.81	10.86	-69.95	-13.00	-56.95	peak	V
3100.000	-68.86	20.81	-48.05	-13.00	-35.05	peak	V
5140.000	-72.82	27.32	-45.50	-13.00	-32.50	peak	V
7348.000	-72.61	30.93	-41.68	-13.00	-28.68	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	5	Date:	01/30/2013
Frequency:	1852.4 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
99.5000	-74.78	-1.70	-76.48	-13.00	-63.48	peak	H
234.0000	-66.81	-1.38	-68.19	-13.00	-55.19	peak	H
390.0000	-71.45	1.66	-69.79	-13.00	-56.79	peak	H
520.0000	-74.32	7.65	-66.67	-13.00	-53.67	peak	H
680.0000	-76.96	7.02	-69.94	-13.00	-56.94	peak	H
850.0000	-77.20	12.56	-64.64	-13.00	-51.64	peak	H
3148.000	-67.80	18.14	-49.66	-13.00	-36.66	peak	H
5344.000	-72.53	25.34	-47.19	-13.00	-34.19	peak	H
7276.000	-71.56	33.28	-38.28	-13.00	-25.28	peak	H
126.0000	-70.60	10.40	-60.20	-13.00	-47.20	peak	V
234.0000	-65.96	1.48	-64.48	-13.00	-51.48	peak	V
370.0000	-74.58	2.03	-72.55	-13.00	-59.55	peak	V
530.0000	-78.81	3.68	-75.13	-13.00	-62.13	peak	V
728.0000	-76.72	10.72	-66.00	-13.00	-53.00	peak	V
850.0000	-79.42	11.49	-67.93	-13.00	-54.93	peak	V
3148.000	-68.48	21.08	-47.40	-13.00	-34.40	peak	V
5380.000	-72.00	27.67	-44.33	-13.00	-31.33	peak	V
7588.000	-72.93	30.96	-41.97	-13.00	-28.97	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	5	Date:	01/30/2013
Frequency:	1880.0 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
99.5000	-74.18	-1.70	-75.88	-13.00	-62.88	peak	H
234.0000	-67.06	-1.38	-68.44	-13.00	-55.44	peak	H
410.0000	-72.59	3.00	-69.59	-13.00	-56.59	peak	H
556.5000	-79.13	7.90	-71.23	-13.00	-58.23	peak	H
728.0000	-76.04	7.78	-68.26	-13.00	-55.26	peak	H
920.0000	-79.61	14.74	-64.87	-13.00	-51.87	peak	H
3172.000	-68.55	18.20	-50.35	-13.00	-37.35	peak	H
6496.000	-72.20	30.45	-41.75	-13.00	-28.75	peak	H
7792.000	-72.83	33.72	-39.11	-13.00	-26.11	peak	H
132.5000	-73.86	13.02	-60.84	-13.00	-47.84	peak	V
234.0000	-66.87	1.48	-65.39	-13.00	-52.39	peak	V
400.0000	-76.13	1.33	-74.80	-13.00	-61.80	peak	V
567.0000	-79.27	4.91	-74.36	-13.00	-61.36	peak	V
773.0000	-78.79	11.17	-67.62	-13.00	-54.62	peak	V
920.0000	-80.68	11.87	-68.81	-13.00	-55.81	peak	V
3100.000	-68.64	20.81	-47.83	-13.00	-34.83	peak	V
5356.000	-71.87	27.63	-44.24	-13.00	-31.24	peak	V
7588.000	-72.69	30.96	-41.73	-13.00	-28.73	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	5	Date:	01/30/2013
Frequency:	1907.6 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
88.5000	-72.77	-0.50	-73.27	-13.00	-60.27	peak	H
234.0000	-67.30	-1.38	-68.68	-13.00	-55.68	peak	H
430.0000	-70.53	3.67	-66.86	-13.00	-53.86	peak	H
580.0000	-78.21	7.60	-70.61	-13.00	-57.61	peak	H
728.0000	-74.85	7.78	-67.07	-13.00	-54.07	peak	H
936.0000	-79.71	14.84	-64.87	-13.00	-51.87	peak	H
3136.000	-68.60	18.10	-50.50	-13.00	-37.50	peak	H
5212.000	-72.44	24.73	-47.71	-13.00	-34.71	peak	H
7312.000	-72.67	33.36	-39.31	-13.00	-26.31	peak	H
126.0000	-72.92	10.40	-62.52	-13.00	-49.52	peak	V
234.0000	-67.64	1.48	-66.16	-13.00	-53.16	peak	V
360.0000	-75.34	2.43	-72.91	-13.00	-59.91	peak	V
556.0000	-79.33	4.35	-74.98	-13.00	-61.98	peak	V
728.0000	-77.52	10.72	-66.80	-13.00	-53.80	peak	V
867.0000	-80.83	11.36	-69.47	-13.00	-56.47	peak	V
3052.000	-67.49	20.53	-46.96	-13.00	-33.96	peak	V
5404.000	-71.80	27.72	-44.08	-13.00	-31.08	peak	V
7900.000	-73.19	30.54	-42.65	-13.00	-29.65	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	6	Date:	01/30/2013
Frequency:	826.4 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
126.0000	-65.11	-5.04	-70.15	-13.00	-57.15	peak	H
266.0000	-64.86	-4.34	-69.20	-13.00	-56.20	peak	H
410.0000	-73.91	3.00	-70.91	-13.00	-57.91	peak	H
607.5000	-77.84	7.84	-70.00	-13.00	-57.00	peak	H
783.5000	-73.49	10.37	-63.12	-13.00	-50.12	peak	H
943.0000	-80.88	14.85	-66.03	-13.00	-53.03	peak	H
2836.000	-69.48	17.33	-52.15	-13.00	-39.15	peak	H
5392.000	-72.23	25.55	-46.68	-13.00	-33.68	peak	H
7540.000	-73.18	33.77	-39.41	-13.00	-26.41	peak	H
71.5000	-66.89	-8.64	-75.53	-13.00	-62.53	peak	V
246.0000	-66.20	-0.40	-66.60	-13.00	-53.60	peak	V
430.0000	-74.44	1.39	-73.05	-13.00	-60.05	peak	V
559.0000	-79.80	4.37	-75.43	-13.00	-62.43	peak	V
668.5000	-74.77	9.46	-65.31	-13.00	-52.31	peak	V
963.5000	-86.09	12.40	-73.69	-13.00	-60.69	peak	V
3040.000	-70.13	20.46	-49.67	-13.00	-36.67	peak	V
5212.000	-72.81	27.43	-45.38	-13.00	-32.38	peak	V
7636.000	-71.68	30.90	-40.78	-13.00	-27.78	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	6	Date:	01/30/2013
Frequency:	836.6 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
99.5000	-74.10	-1.70	-75.80	-13.00	-62.80	peak	H
266.0000	-65.25	-4.34	-69.59	-13.00	-56.59	peak	H
390.0000	-72.39	1.66	-70.73	-13.00	-57.73	peak	H
491.5000	-73.61	6.45	-67.16	-13.00	-54.16	peak	H
630.0000	-78.90	7.26	-71.64	-13.00	-58.64	peak	H
737.5000	-77.89	8.10	-69.79	-13.00	-56.79	peak	H
2956.000	-69.81	17.62	-52.19	-13.00	-39.19	peak	H
5476.000	-72.05	25.94	-46.11	-13.00	-33.11	peak	H
7516.000	-72.36	33.79	-38.57	-13.00	-25.57	peak	H
71.5000	-66.91	-8.64	-75.55	-13.00	-62.55	peak	V
245.5000	-66.47	-0.33	-66.80	-13.00	-53.80	peak	V
368.5000	-75.68	2.08	-73.60	-13.00	-60.60	peak	V
491.5000	-74.36	2.59	-71.77	-13.00	-58.77	peak	V
698.5000	-78.58	10.14	-68.44	-13.00	-55.44	peak	V
926.0000	-87.62	12.13	-75.49	-13.00	-62.49	peak	V
3088.000	-69.59	20.74	-48.85	-13.00	-35.85	peak	V
5380.000	-72.55	27.67	-44.88	-13.00	-31.88	peak	V
7504.000	-72.40	31.08	-41.32	-13.00	-28.32	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	6	Date:	01/30/2013
Frequency:	846.6 MHz	Test By:	Fly Lu

Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
126.0000	-65.74	-5.04	-70.78	-13.00	-57.78	peak	H
266.5000	-65.29	-4.35	-69.64	-13.00	-56.64	peak	H
390.0000	-72.85	1.66	-71.19	-13.00	-58.19	peak	H
491.5000	-71.67	6.45	-65.22	-13.00	-52.22	peak	H
631.5000	-78.27	7.20	-71.07	-13.00	-58.07	peak	H
781.5000	-79.87	10.26	-69.61	-13.00	-56.61	peak	H
2716.000	-68.39	17.03	-51.36	-13.00	-38.36	peak	H
5332.000	-73.09	25.28	-47.81	-13.00	-34.81	peak	H
7252.000	-72.44	33.22	-39.22	-13.00	-26.22	peak	H
92.5000	-72.70	-4.73	-77.43	-13.00	-64.43	peak	V
266.0000	-67.55	-0.82	-68.37	-13.00	-55.37	peak	V
390.0000	-70.67	1.49	-69.18	-13.00	-56.18	peak	V
532.5000	-78.97	3.83	-75.14	-13.00	-62.14	peak	V
660.5000	-79.19	9.40	-69.79	-13.00	-56.79	peak	V
937.0000	-80.11	12.61	-67.50	-13.00	-54.50	peak	V
3052.000	-69.13	20.53	-48.60	-13.00	-35.60	peak	V
5260.000	-71.89	27.49	-44.40	-13.00	-31.40	peak	V
7648.000	-71.85	30.89	-40.96	-13.00	-27.96	peak	V

Standard:	RSS-Gen	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	HE920-NA	Temp.(°C)/Hum.(%RH):	23(°C)/55.2%RH
Mode:	7	Date:	11/30/2012
		Test By:	Fly Lu

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2810.500	35.39	5.43	40.82	74.00	-33.18	peak	H
5003.500	35.43	12.17	47.60	74.00	-26.40	peak	H
6533.500	33.90	17.58	51.48	74.00	-22.52	peak	H
2683.000	34.97	5.10	40.07	74.00	-33.93	peak	V
4901.500	33.32	11.90	45.22	74.00	-28.78	peak	V
6457.000	33.47	17.27	50.74	74.00	-23.26	peak	V

8 Frequency Stability (Temperature & Voltage Variation) Test

8.1. Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

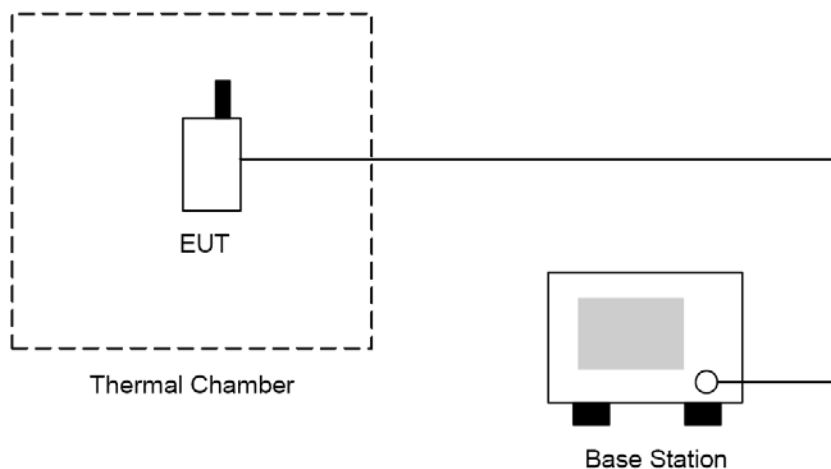
8.2. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Universal Radio Communication Tester	R & S	CMU200	109369	08/07/2012	(2)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/07/2012	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

8.3. Setup



8.4. Test Procedure

The measurement is made according to FCC rules part 22 and 24:

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at $25 \pm 5^{\circ}\text{C}$ and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

8.5. Uncertainty

The measurement uncertainty is defined as for Frequency Stability (Temperature Variation) measurement is $\pm 10\text{Hz}$.

8.6. Test Result

Model Number	HE920-NA					
Test Item	Frequency Stability (Temperature & Voltage Variation)					
Test Mode	Mode 1					
Date of Test	01/31/2013				Test Site	TE05
Level	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
Normal	3.80	-20	-16	-0.019	±2.5	Pass
Normal	3.80	-10	-14	-0.017	±2.5	Pass
Normal	3.80	0	-13	-0.016	±2.5	Pass
Normal	3.80	10	-17	-0.020	±2.5	Pass
Battery full point	4.20	20	-4	-0.005	±2.5	Pass
Normal	3.80	20	10	0.012	±2.5	Pass
Battery cut-off point	3.40	20	17	0.020	±2.5	Pass
Normal	3.80	30	-21	-0.025	±2.5	Pass
Normal	3.80	40	-18	-0.022	±2.5	Pass
Normal	3.80	50	-11	-0.013	±2.5	Pass
Normal	3.80	55	-13	-0.016	±2.5	Pass

Model Number	HE920-NA					
Test Item	Frequency Stability (Temperature & Voltage Variation)					
Test Mode	Mode 2					
Date of Test	01/31/2013				Test Site	TE05
Level	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
Normal	3.80	-20	37	0.020	±2.5	Pass
Normal	3.80	-10	15	0.008	±2.5	Pass
Normal	3.80	0	22	0.012	±2.5	Pass
Normal	3.80	10	19	0.010	±2.5	Pass
Battery full point	4.20	20	40	0.021	±2.5	Pass
Normal	3.80	20	23	0.012	±2.5	Pass
Battery cut-off point	3.40	20	13	0.007	±2.5	Pass
Normal	3.80	30	24	0.013	±2.5	Pass
Normal	3.80	40	17	0.009	±2.5	Pass
Normal	3.80	50	27	0.014	±2.5	Pass
Normal	3.80	55	22	0.012	±2.5	Pass

Note: This device operating temperature range is -20°C ~ +55°C.

Model Number	HE920-NA					
Test Item	Frequency Stability (Temperature & Voltage Variation)					
Test Mode	Mode 5					
Date of Test	01/31/2013				Test Site	TE05
Level	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
Normal	3.80	-20	-23	-0.027	±2.5	Pass
Normal	3.80	-10	-18	-0.022	±2.5	Pass
Normal	3.80	0	-12	-0.014	±2.5	Pass
Normal	3.80	10	-16	-0.019	±2.5	Pass
Battery full point	4.20	20	-13	-0.007	±2.5	Pass
Normal	3.80	20	-26	-0.014	±2.5	Pass
Battery cut-off point	3.40	20	29	0.015	±2.5	Pass
Normal	3.80	30	-8	-0.010	±2.5	Pass
Normal	3.80	40	-13	-0.016	±2.5	Pass
Normal	3.80	50	5	0.006	±2.5	Pass
Normal	3.80	55	-16	-0.019	±2.5	Pass

Model Number	HE920-NA					
Test Item	Frequency Stability (Temperature & Voltage Variation)					
Test Mode	Mode 6					
Date of Test	01/31/2013				Test Site	TE05
Level	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
Normal	3.80	-20	36	0.019	±2.5	Pass
Normal	3.80	-10	20	0.011	±2.5	Pass
Normal	3.80	0	-23	-0.012	±2.5	Pass
Normal	3.80	10	-11	-0.006	±2.5	Pass
Battery full point	4.20	20	13	0.016	±2.5	Pass
Normal	3.80	20	-21	-0.025	±2.5	Pass
Battery cut-off point	3.40	20	-11	-0.013	±2.5	Pass
Normal	3.80	30	11	0.006	±2.5	Pass
Normal	3.80	40	27	0.014	±2.5	Pass
Normal	3.80	50	9	0.005	±2.5	Pass
Normal	3.80	55	-12	-0.006	±2.5	Pass

Note: This device operating temperature range is -20°C ~ +55°C.