

FCC 47 CFR PART 24E

Product Type : GSM Mobile Telephone
Applicant : Doro AB
Address : Magistratsvägen 10, SE-226 43 Lund, Sweden
Trade Name : doro
Model Number : Doro PhoneEasy 610
Test Specification : FCC 47 CFR PART 24E: Oct, 2009
ANSI/TIA-603-C-2004
Application Purpose : Original
Receive Date : Jan. 16, 2012
Issue Date : Feb. 07, 2012

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	Feb. 07, 2012	Initial Issue	



Verification of Compliance

Issued Date: 2012/02/07

Product Type : GSM Mobile Telephone
Applicant : Doro AB
Address : Magistratsvägen 10, SE-226 43 Lund, Sweden
Trade Name : doro
Model Number : Doro PhoneEasy 610
FCC ID : WS5DORO610
EUT Rated Voltage : DC 5.0V, 1.0A
Test Voltage : 120 Vac / 60 Hz
Applicable Standard : FCC 47 CFR PART 24E: Oct, 2009
ANSI/TIA-603-C-2004
Test Result : Complied
Application Purpose : Original
Performing Lab. : A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
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Taiwan Accreditation Foundation accreditation number:
1330
<http://www.atl-lab.com.tw/e-index.htm>

Testing Laboratory
1330

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 24E.

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

Approved By

Reviewed By

(Manager)

(Murphy Wang)

(Testing Engineer)

(Fly Lu)

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1 General Information

1.1. EUT Description

Applicant		Doro AB				
Applicant Address		Magistratsvägen 10, SE-226 43 Lund, Sweden				
Manufacturer		CK TELECOM LTD.				
Manufacturer Address		Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.				
Product Type		GSM Mobile Telephone				
Trade Name		doro				
Model Number		Doro PhoneEasy 610				
FCC ID		WS5DORO610				
Mode	GSM	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation	
		1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8	GMSK	
Channel Control		Auto				
Type of Antenna		Built-in PIFA Antenna				
Antenna Gain (dBi)		GSM 1900: -2.2 dBi				
Max. RF Output power		GSM 1900: 29.60 dBm / 0.912 W				
Max. EIRP		GSM 1900: 26.70 dBm / 0.468 W				
Emission Designator		GSM 1900: 249KGXW				
Hardware Version		SHELLFISH-V2.0				
Component						
Battery		doro, SHELL01A DC 3.7V, 800mAh				



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 1900 Link

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.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

Tested System Details

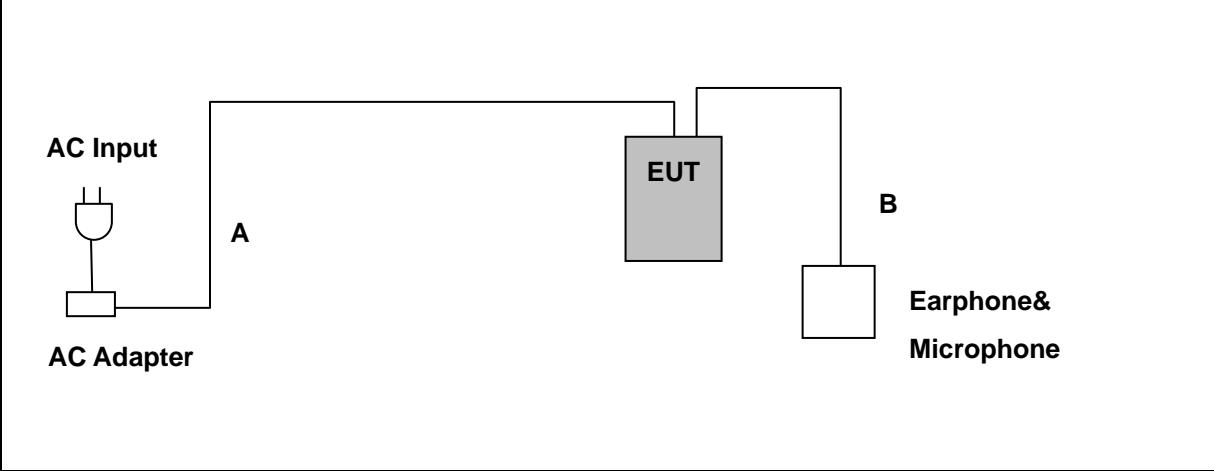
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model Number	Serial Number	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	109369	N/A

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

	
Signal Cable Type	Signal Cable Description
A USB Cable	Shielded, 1.5 m
B Earphone&Microphone Cable	Non-Shielded, 1.3 m

1.5. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
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
Equivalent Isotropic Radiated Power	§24.232(c) SRSP-510(5.1.2)	RSS-133 (6.4) RSS-132 (4.5.1)	< 2 Watts	Pass
Occupied Bandwidth	§2.1049 §22.917(a) §24.238(a)	N/A	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 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)	< 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

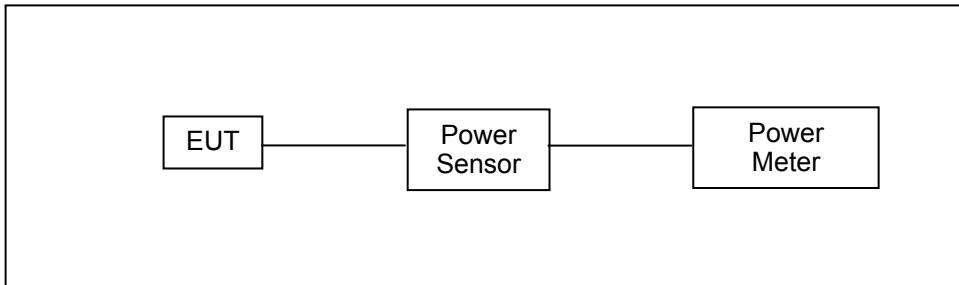
2.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	08/10/2010	(2)
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	12/15/2011	(1)
Wideband Power Meter	Agilent	N1921A	MY45241957	12/15/2011	(1)
Test Site	ATL	TE02	TE02	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	Doro PhoneEasy 610				
Test Item	RF Output Power				
Test Mode	Mode 1: GSM 1900 Link				
Date of Test	01/17/2012		Test Site	TE02	
Bands	Frequency (MHz)	Burst Average Power		Peak Power	
		(dBm)	(W)	(dBm)	(W)
GSM 1900	1850.20	29.50	0.891	29.60	0.912
	1880.00	29.30	0.851	29.50	0.891
	1909.80	29.30	0.851	29.40	0.871

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

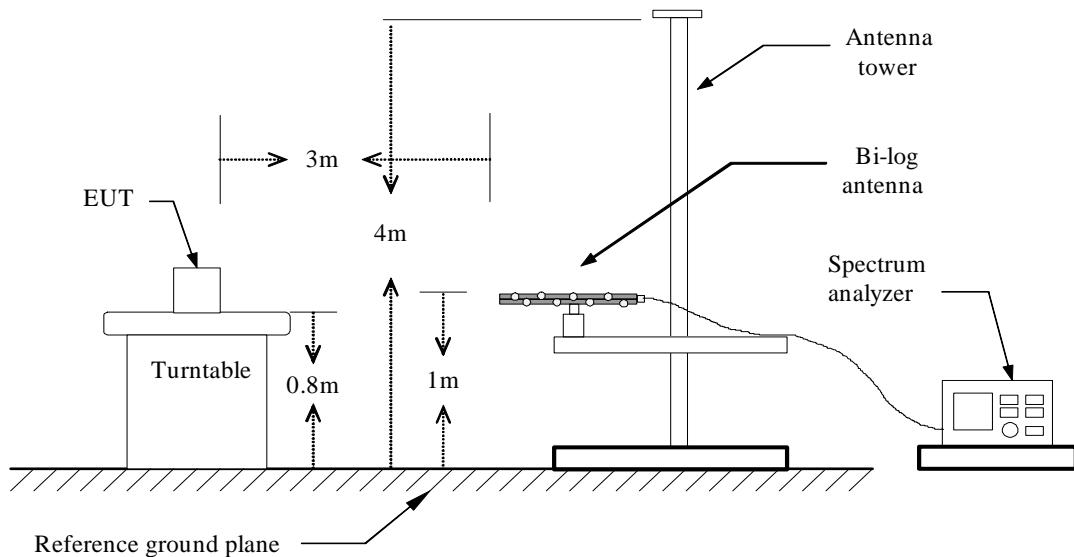
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/16/2012	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/16/2012	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/23/2011	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/23/2011	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/29/2011	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/29/2011	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/28/2011	(1)
Test Site	ATL	TE01	888001	12/20/2011	(1)

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

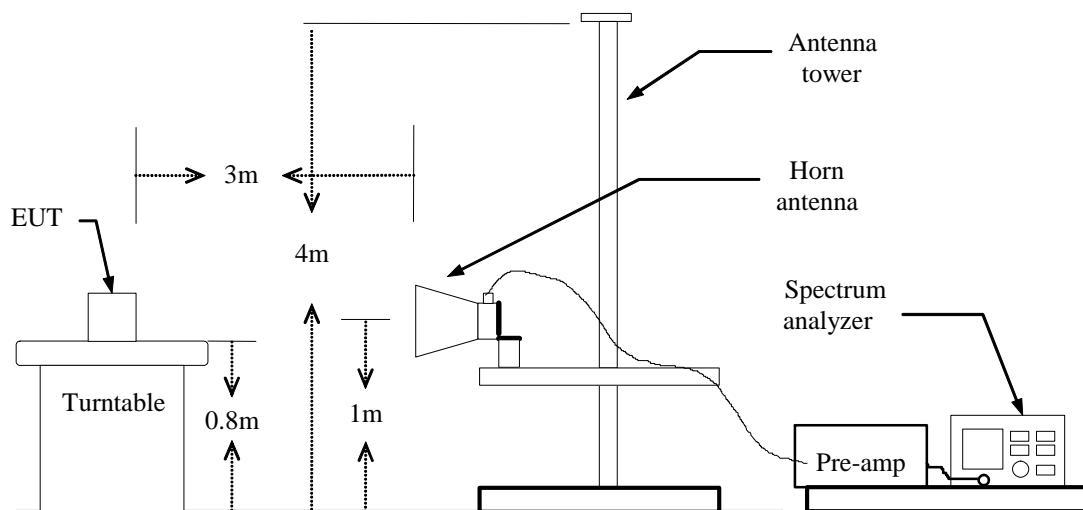
NOTE: N.C.R. = No Calibration Request.

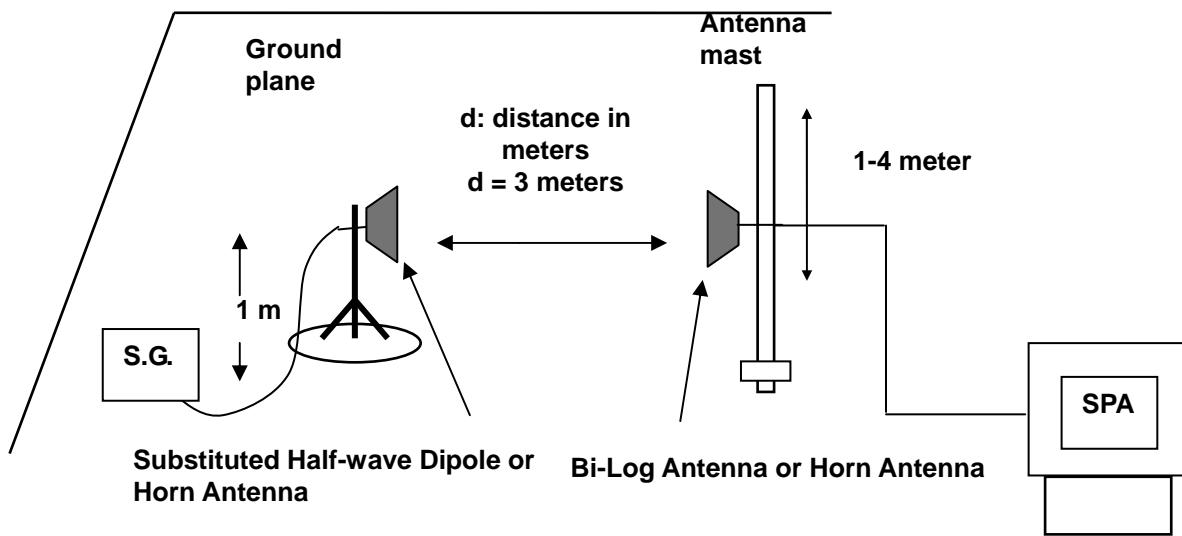
3.3. Test Setup

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	Doro PhoneEasy 610					
Test Item	EIRP					
Test Mode	Mode 1: GSM 1900 Link					
Date of Test	01/19/2012			Test Site	TE01	
Bands	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction factor (dBm)	EIRP (dBm)	Limit (W)
GSM 1900	1850.20	H	15.23	10.49	25.72	0.373 < 2W
		V	17.94	8.33	26.27	0.424 < 2W
	1880.00	H	15.05	10.51	25.56	0.360 < 2W
		V	17.99	8.57	26.56	0.453 < 2W
	1909.80	H	15.22	10.51	25.73	0.374 < 2W
		V	17.89	8.81	26.70	0.468 < 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.

4 Occupied Bandwidth Test

4.1. Limit

The Occupied Bandwidth Limit:

N/A.

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.

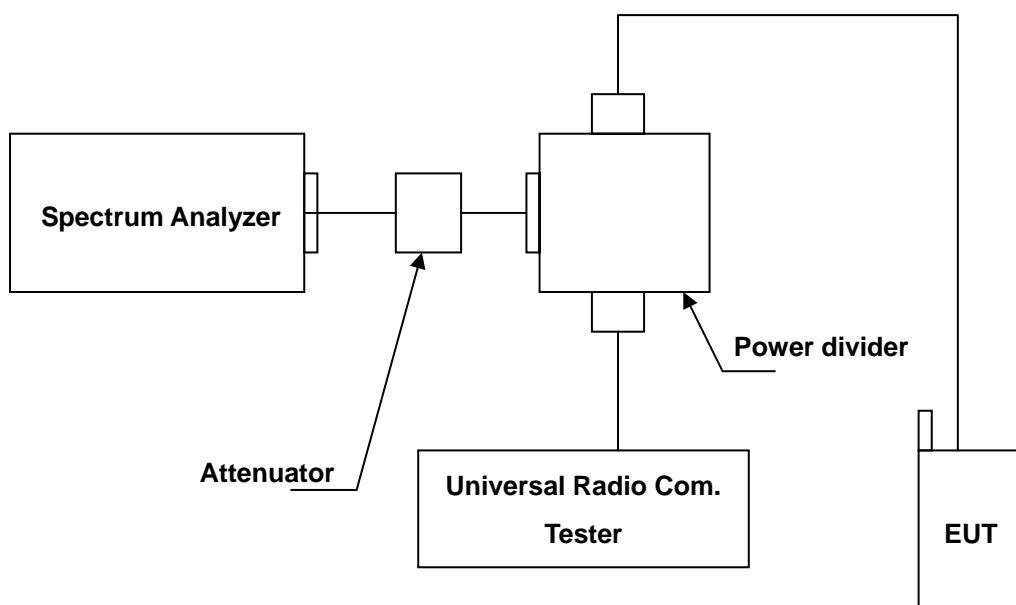
4.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/23/2011	⁽¹⁾
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	08/10/2010	⁽²⁾
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE02	TE02	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.
3. 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.
4. The band edge setting:
 - a. RB=3 kHz; VB=3 kHz for GSM 850 and PCS 1900.
 - b. RB=100 kHz; VB=100 kHz for WCDMA Band V and WCDMA Band II.

4.5. Uncertainty

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

4.6. Test Result

99% Occupied Bandwidth

Model Number	Doro PhoneEasy 610		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: GSM 1900 Link		
Date of Test	01/18/2012	Test Site	TE02
Channel No.	Frequency (MHz)	99% Bandwidth (kHz)	Note
512	1850.20	249.0134	RBW:10kHz , VBW:30kHz
661	1880.00	245.2709	RBW:10kHz , VBW:30kHz
810	1909.80	248.9670	RBW:10kHz , VBW:30kHz

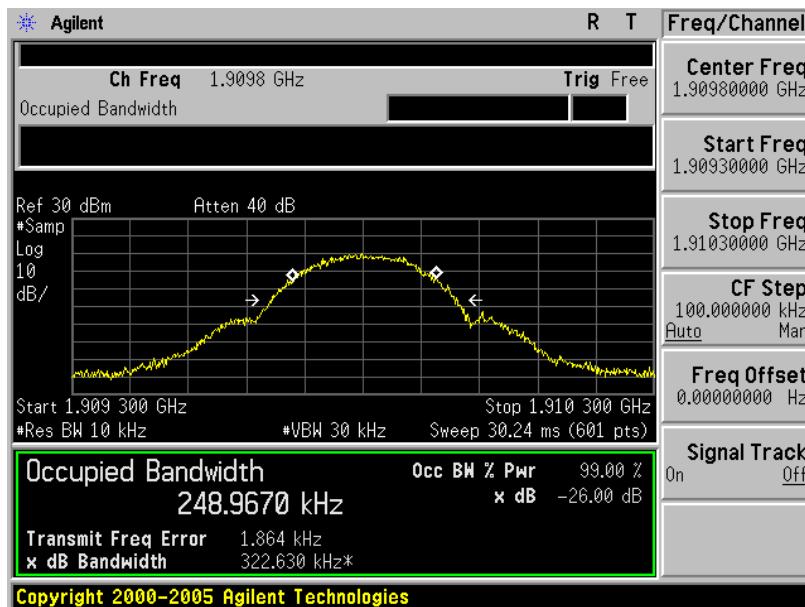
Figure Channel 512



Figure Channel 661

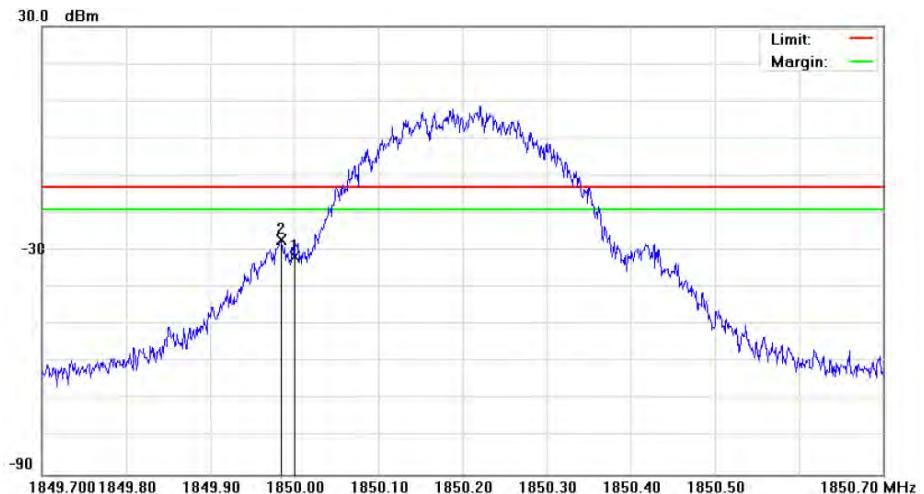
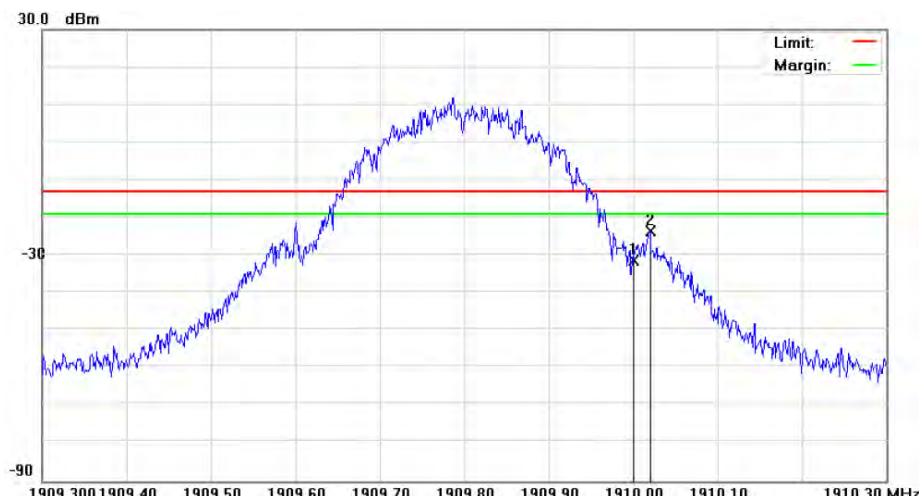


Figure Channel 810



Band Edge

Model Number	Doro PhoneEasy 610				
Test Item	Band Edge				
Test Mode	Mode 1: GSM 1900 Link				
Date of Test	01/18/2012		Test Site	TE02	
Band	Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)	Result
Lower	512	1850.000	-31.71	-13	Pass
Higher	810	1910.000	-31.37	-13	Pass

Lower Band**Higher Band**

5 Conducted Emission Test

5.1. 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.

5.2. Test Instruments

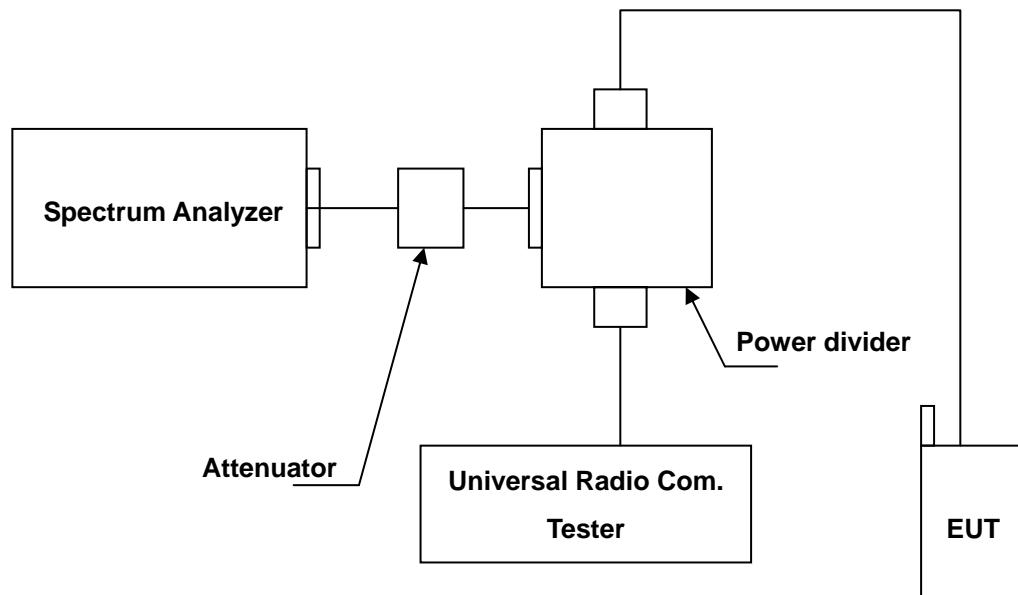
Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/23/2011	(2)
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	08/10/2010	(2)
Attenuator	RADIALL	R41572000	0603033073	N.C.R.	-----
Power divider	Agilent	87302C	3239A00760	N.C.R.	-----
Test Site	ATL	TE02	TE02	N.C.R.	-----

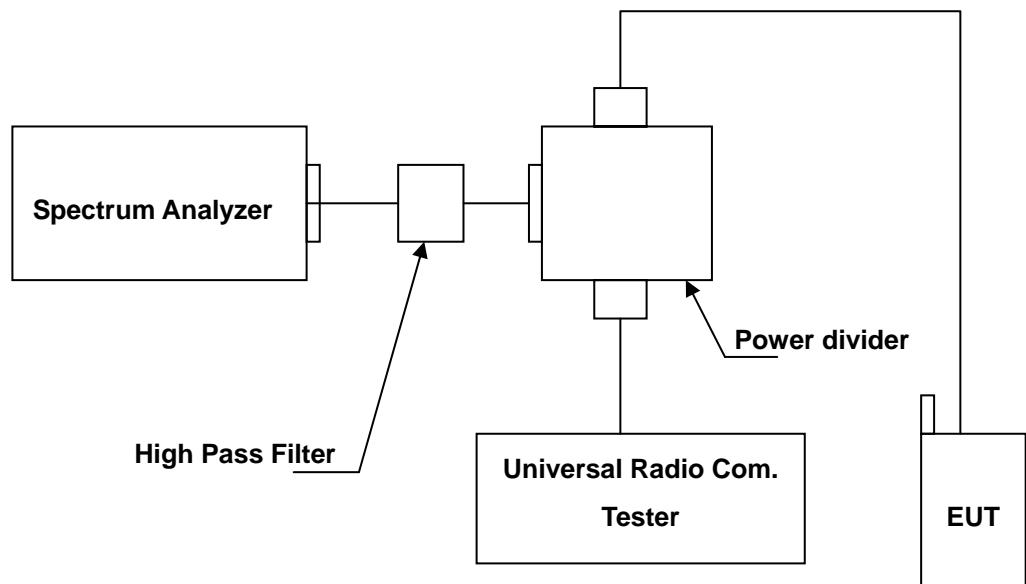
Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

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

5.3. Setup

Below 2.8GHz



Above 2.8GHz**5.4. 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.

5.5. Uncertainty

The measurement uncertainty is evaluated as ± 2.24 dB.

5.6. Test Result

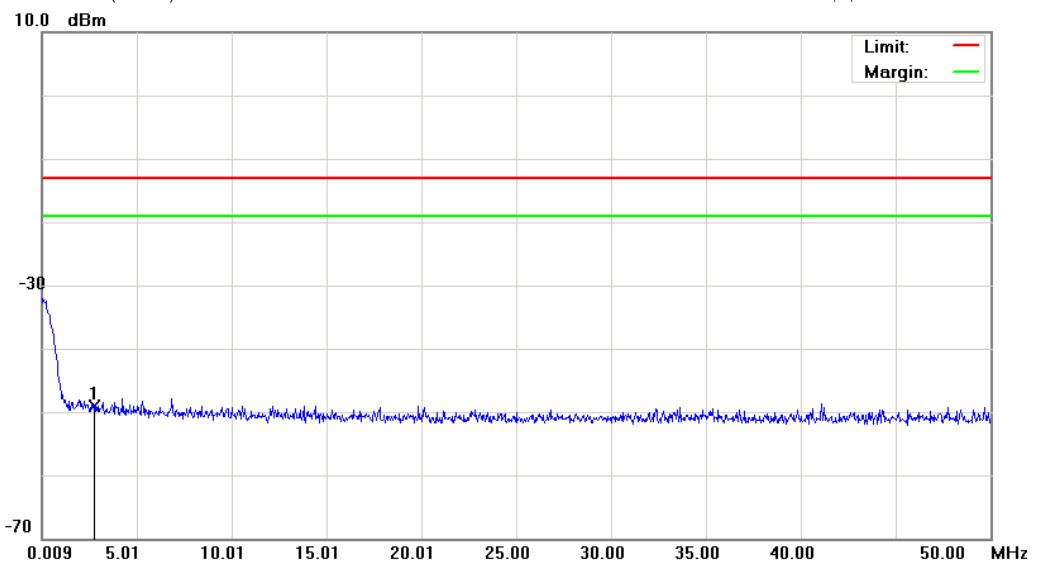
Model Number	Doro PhoneEasy 610		
Test Item	Conducted Emission		
Mode	Mode 1: GSM 1900 Link		
Date of Test	01/17/2012	Test Site	TE02

File:Doro610(CH512)

Data #:1

Date: 2012/1/17

Time: 下午 05:18:00



Site: : RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.7334	-61.96	12.85	-49.11	-13.00	-36.11	peak		

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

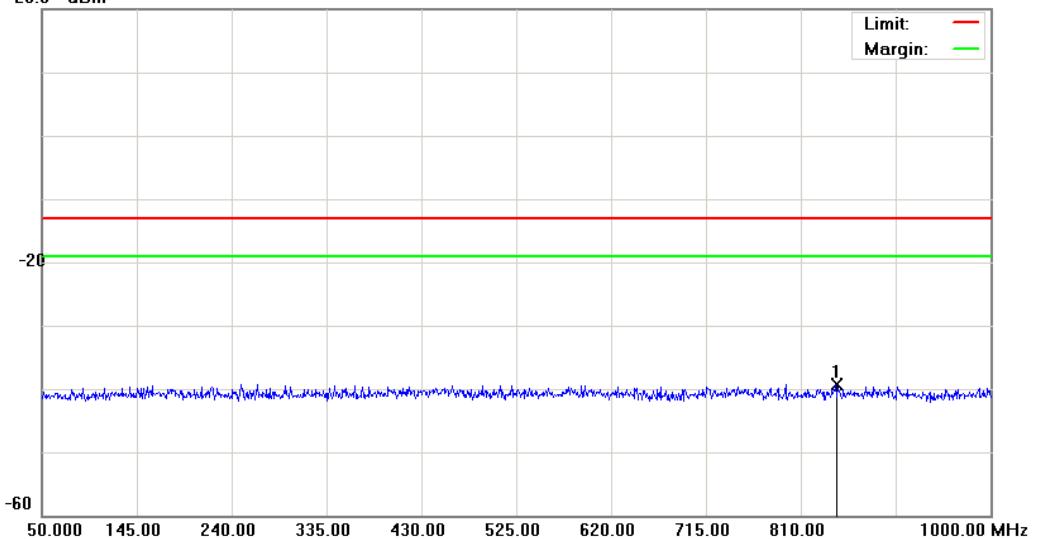
File:Doro610(CH512)

Data #:2

Date: 2012/1/17

Time: 下午 05:18:24

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	845.6250	-52.44	13.23	-39.21	-13.00	-26.21	peak		

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

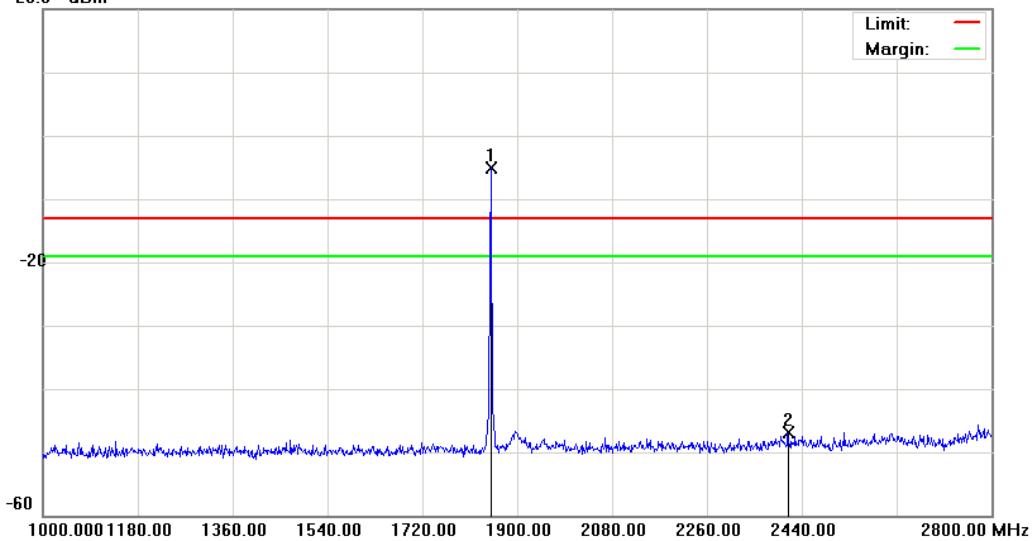
File:Doro610(CH512)

Data #:3

Date: 2012/1/17

Time: 下午 05:25:50

20.0 dBm



Site: : RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1850.500	-9.40	4.26	-5.14	-13.00	7.86	peak		Tx
2		2413.900	-52.07	5.16	-46.91	-13.00	-33.91	peak		

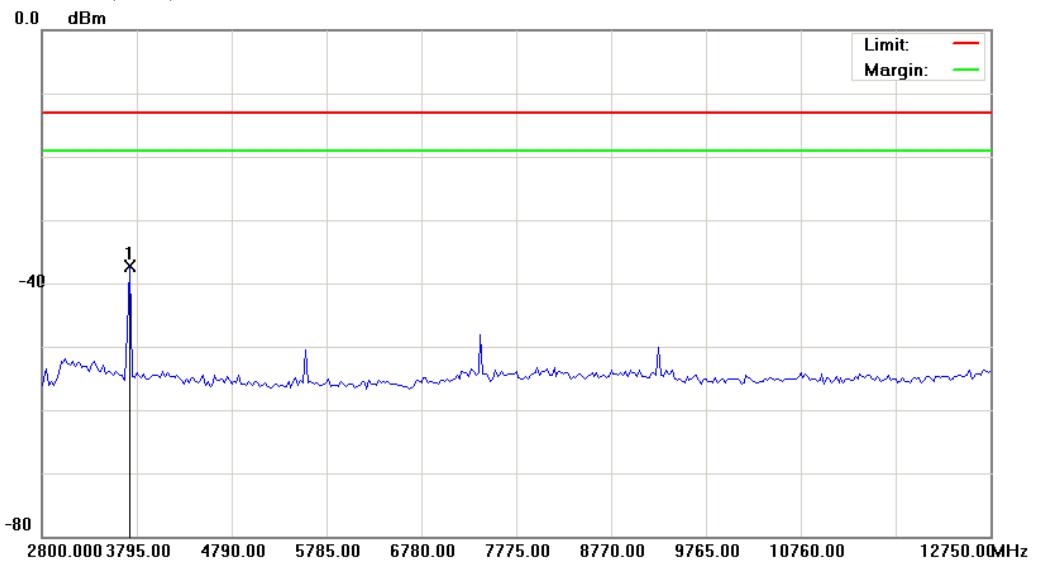
*:Maximum data x:Over limit !:over margin

File:Doro610(CH512)

Data #:4

Date: 2012/1/17

Time: 下午 05:31:14



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree		
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree	Comment
1	*	3720.375	-42.25	4.88	-37.37	-13.00	-24.37	peak			

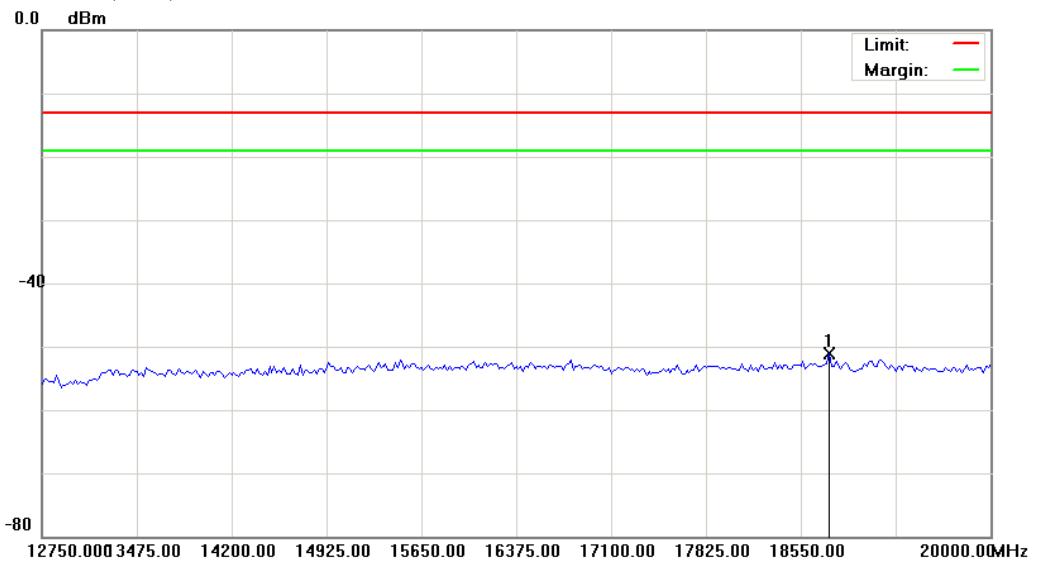
*:Maximum data x:Over limit !:over margin

File:Doro610(CH512)

Data #:5

Date: 2012/1/17

Time: 下午 05:31:36



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	18767.500	-58.14	7.09	-51.05	-13.00	-38.05	peak		

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

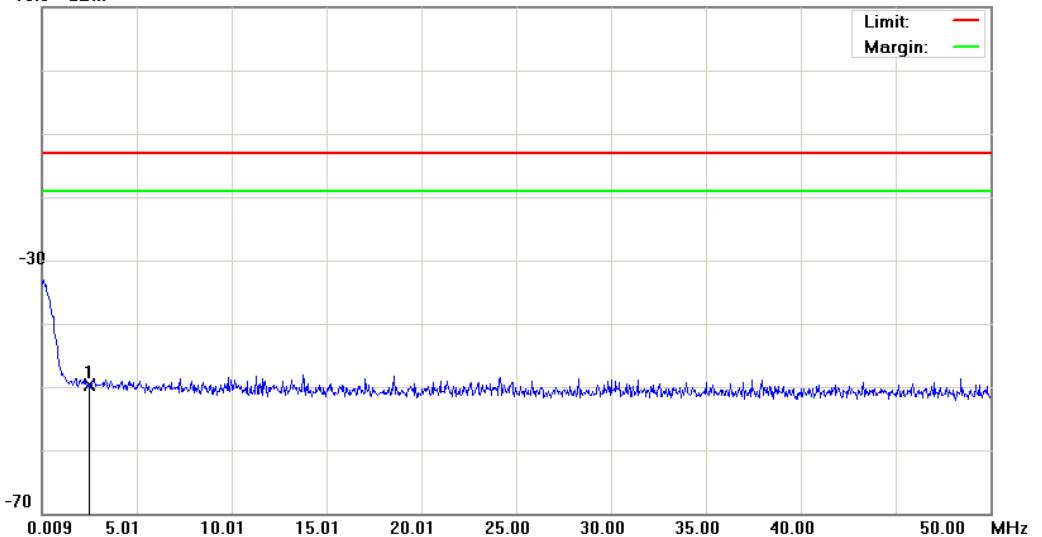
File:Doro610(CH661)

Data #:1

Date: 2012/1/17

Time: 下午 05:21:16

10.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2.5085	-62.68	12.89	-49.79	-13.00	-36.79	peak		

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

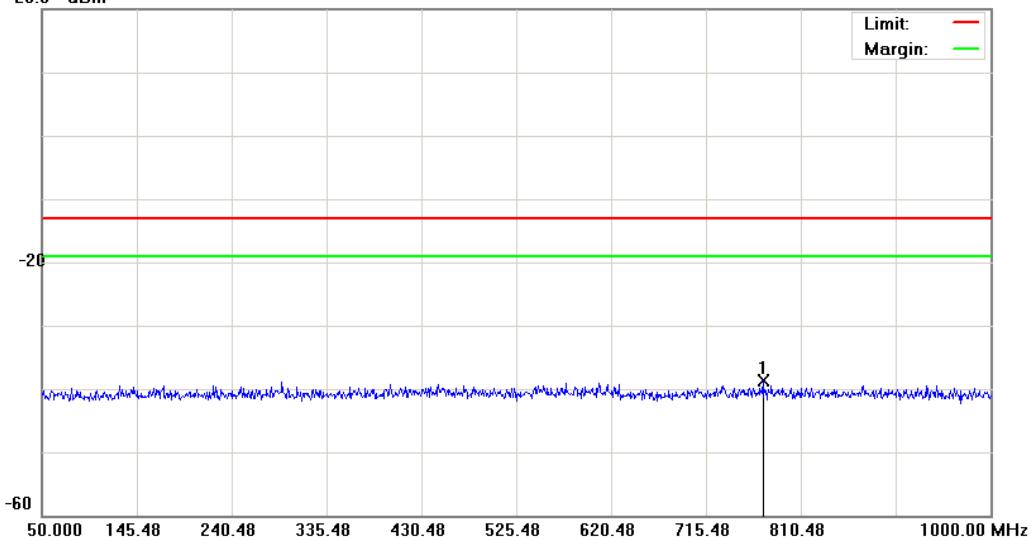
File:Doro610(CH661)

Data #:2

Date: 2012/1/17

Time: 下午 05:21:41

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	772.0000	-51.94	13.15	-38.79	-13.00	-25.79	peak		

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

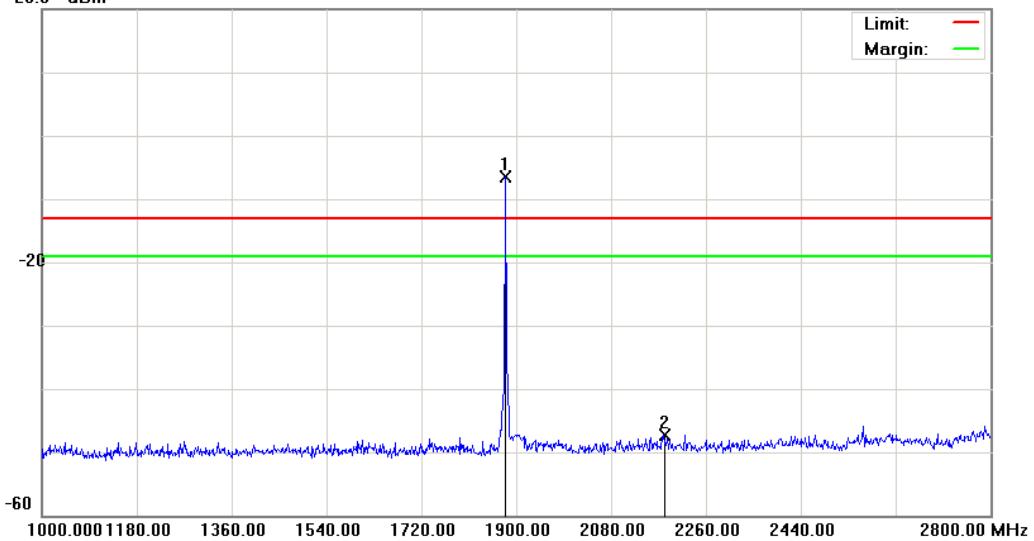
File:Doro610(CH661)

Data #:3

Date: 2012/1/17

Time: 下午 05:27:15

20.0 dBm



Site: : RF Conducted

Polarization: *Conducted po*

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1880.200	-11.06	4.65	-6.41	-13.00	6.59	peak		Tx
2		2179.900	-52.02	4.73	-47.29	-13.00	-34.29	peak		

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

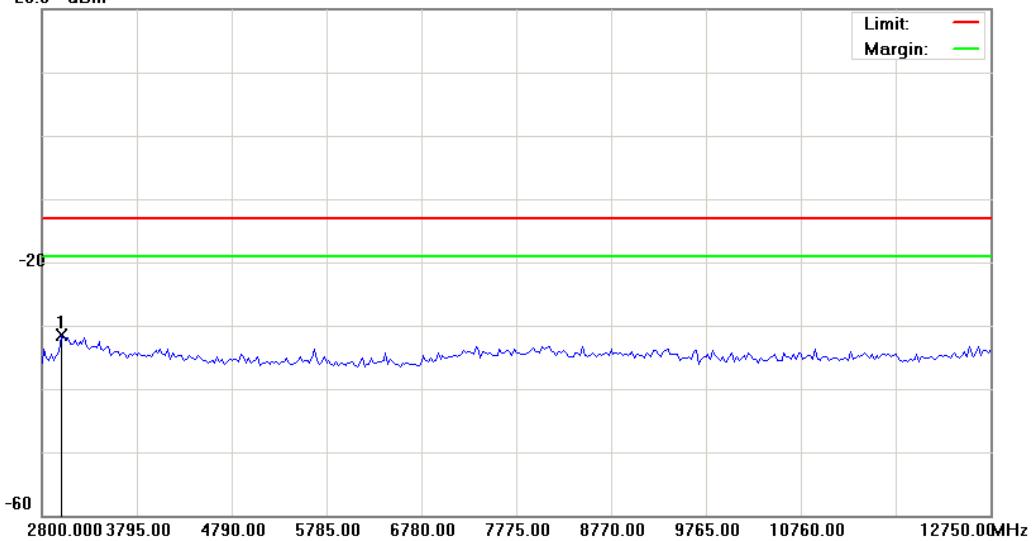
File:Doro610(CH661)

Data #:4

Date: 2012/1/17

Time: 下午 05:32:31

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	2999.000	-37.00	5.48	-31.52	-13.00	-18.52	peak		

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

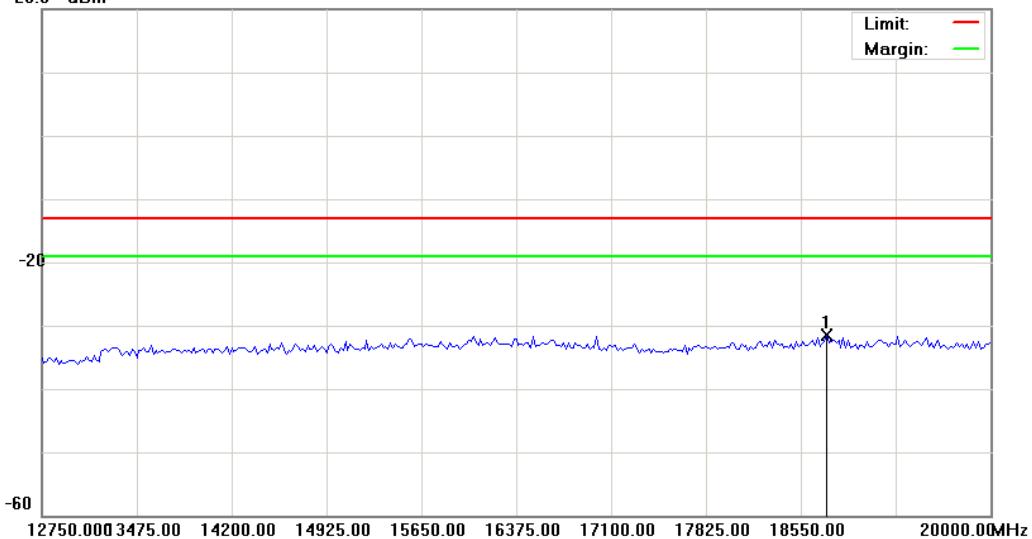
File:Doro610(CH661)

Data #:5

Date: 2012/1/17

Time: 下午 05:32:53

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	18749.375	-38.62	7.08	-31.54	-13.00	-18.54	peak		

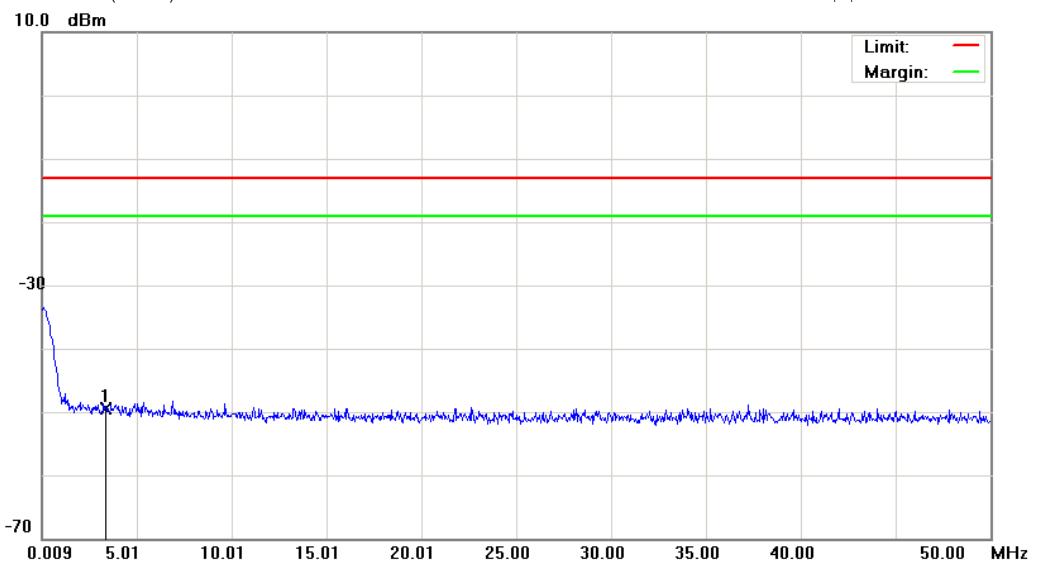
*:Maximum data x:Over limit !:over margin

File:Doro610(CH810)

Data #:1

Date: 2012/1/17

Time: 下午 05:23:36



Site: : RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	3.3334	-62.62	13.10	-49.52	-13.00	-36.52	peak		

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

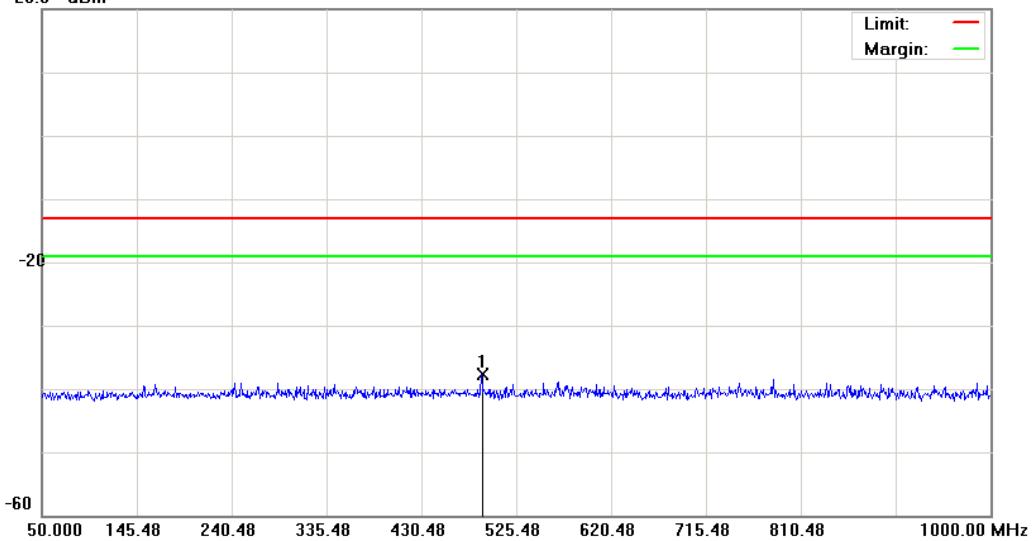
File:Doro610(CH810)

Data #:2

Date: 2012/1/17

Time: 下午 05:24:00

20.0 dBm



Site: : RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	490.3250	-50.80	13.12	-37.68	-13.00	-24.68	peak		

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

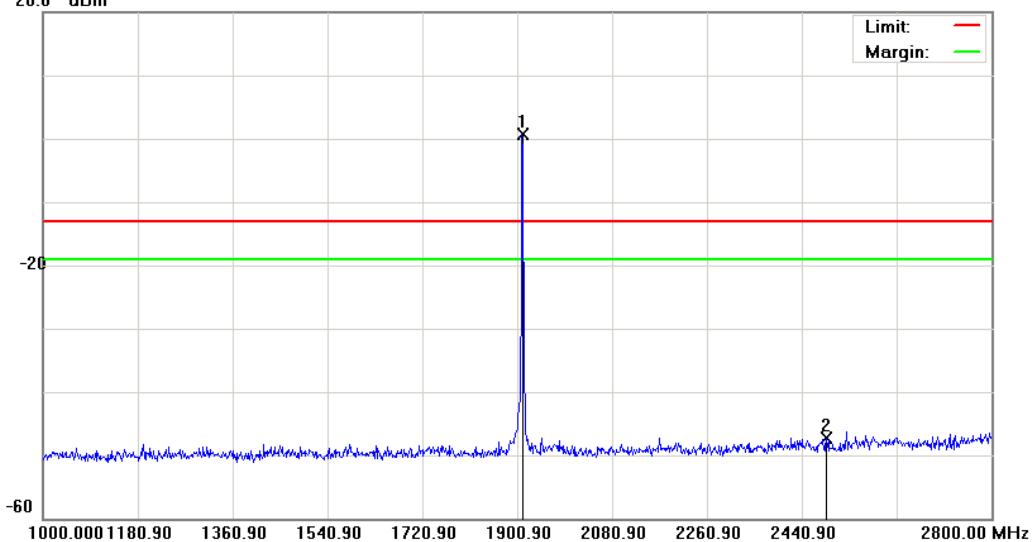
File:Doro610(CH810)

Data #:3

Date: 2012/1/17

Time: 下午 05:28:52

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1909.900	-5.01	5.71	0.70	-13.00	13.70	peak		Tx
2		2486.800	-51.63	4.38	-47.25	-13.00	-34.25	peak		

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

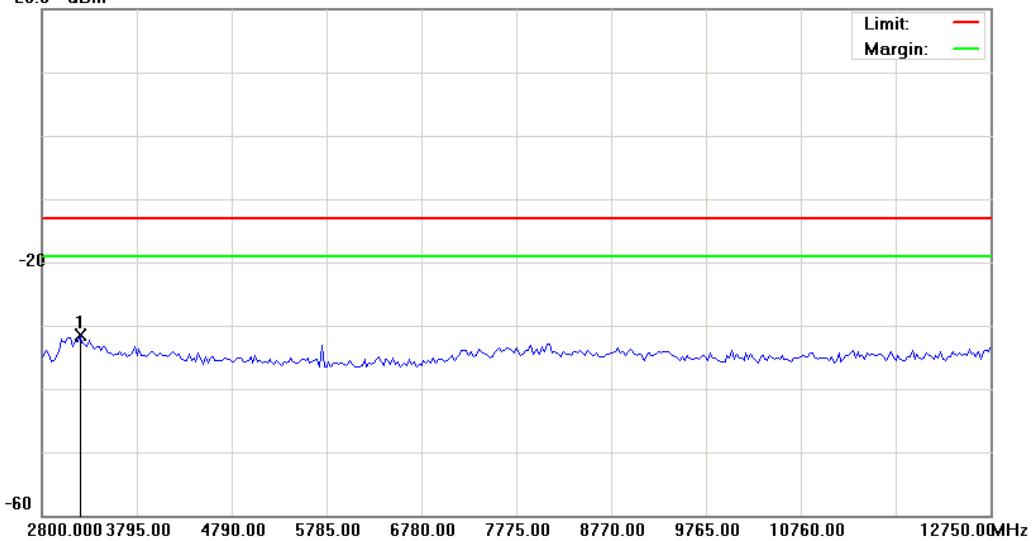
File:Doro610(CH810)

Data #:4

Date: 2012/1/17

Time: 下午 05:33:37

20.0 dBm



Site: : RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	3198.000	-36.69	5.22	-31.47	-13.00	-18.47	peak		

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

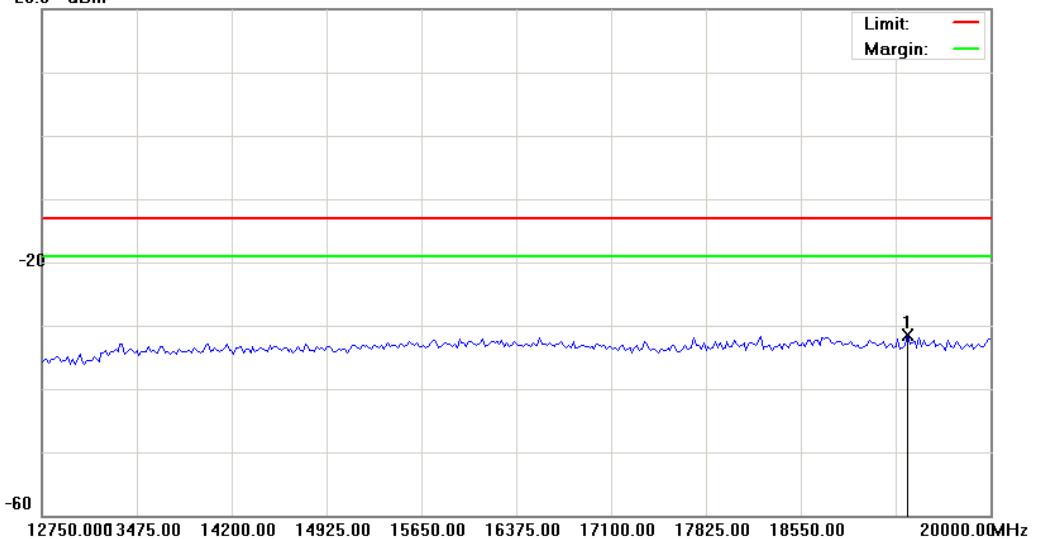
File:Doro610(CH810)

Data #:5

Date: 2012/1/17

Time: 下午 05:33:59

20.0 dBm



Site: RF Conducted

Polarization: **Conducted po**

Temperature: 23 °C

Limit: FCC Part 24 conducted(9k-12.75G)

Power: AC 120V/60Hz

Humidity: 55.2 %

EUT: GSM Mobile Telephone

Distance:

RBW: 1000 kHz VBW: 1000 kHz

M/N: Doro PhoneEasy 610

Mode: 1

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	19365.625	-38.82	7.26	-31.56	-13.00	-18.56	peak		

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

6 Field Strength of Spurious Radiation 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.

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

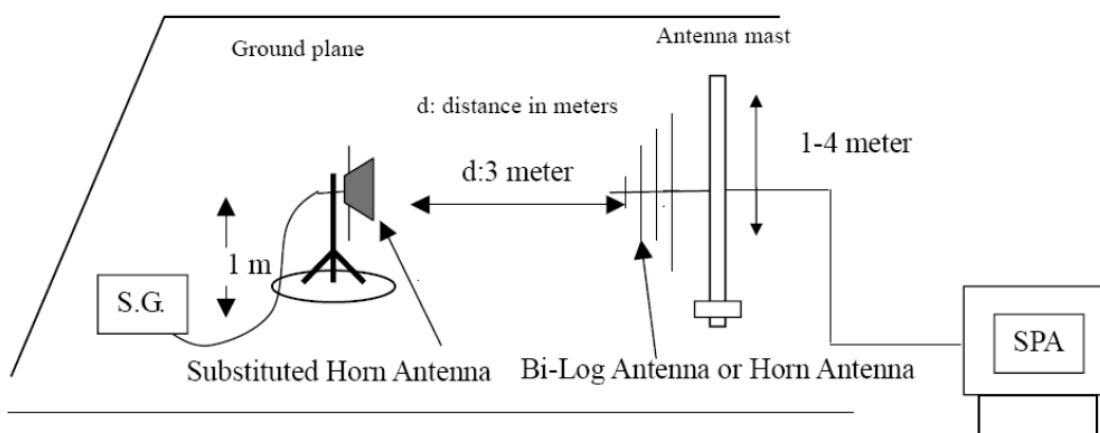
6.2. Test Instruments

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	02/23/2011	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/23/2011	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/29/2011	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/29/2011	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/28/2011	(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.

6.3. Setup





6.4. Test Procedure

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

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

Units	dBm
Resolution Bandwidth	1 MHz
Video Bandwidth	Auto
Sweep Time	Auto

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in **lie-down position (X axis)** and the worst case was recorded.

6.5. Uncertainty

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



6.6. Test Result

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	Doro PhoneEasy 610	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2012/01/19
Frequency:	1850.2 MHz	Test By:	Fly Lu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar.
1	37.0000	-77.87	8.74	-69.13	-13.00	-56.13	peak	H
2	92.5000	-72.17	-0.43	-72.60	-13.00	-59.60	peak	H
3	158.5000	-77.15	0.97	-76.18	-13.00	-63.18	peak	H
4	203.5000	-79.13	2.14	-76.99	-13.00	-63.99	peak	H
5	552.5000	-79.50	7.97	-71.53	-13.00	-58.53	peak	H
6	947.0000	-80.41	14.85	-65.56	-13.00	-52.56	peak	H
7	1686.000	-64.83	10.43	-54.40	-13.00	-41.40	peak	H
8	3702.000	-58.72	15.88	-42.84	-13.00	-29.84	peak	H
9	6054.000	-71.14	23.39	-47.75	-13.00	-34.75	peak	H
1	129.0000	-79.95	13.37	-66.58	-13.00	-53.58	peak	V
2	160.0000	-81.34	12.68	-68.66	-13.00	-55.66	peak	V
3	201.0000	-80.70	10.04	-70.66	-13.00	-57.66	peak	V
4	619.5000	-79.39	8.85	-70.54	-13.00	-57.54	peak	V
5	777.5000	-78.44	11.24	-67.20	-13.00	-54.20	peak	V
6	946.5000	-80.81	12.62	-68.19	-13.00	-55.19	peak	V
7	1847.000	-66.55	8.30	-58.25	-13.00	-45.25	peak	V
8	3702.000	-56.45	19.95	-36.50	-13.00	-23.50	peak	V
9	5550.000	-70.76	23.42	-47.34	-13.00	-34.34	peak	V



Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	Doro PhoneEasy 610	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2012/01/19
Frequency:	1880.0 MHz	Test By:	Fly Lu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar.
1	42.5000	-79.36	9.19	-70.17	-13.00	-57.17	peak	H
2	92.5000	-71.27	-0.43	-71.70	-13.00	-58.70	peak	H
3	159.5000	-79.14	1.30	-77.84	-13.00	-64.84	peak	H
4	202.5000	-80.73	2.36	-78.37	-13.00	-65.37	peak	H
5	606.5000	-79.28	7.87	-71.41	-13.00	-58.41	peak	H
6	951.0000	-79.77	14.85	-64.92	-13.00	-51.92	peak	H
7	1672.000	-63.86	10.42	-53.44	-13.00	-40.44	peak	H
8	3758.000	-57.48	15.98	-41.50	-13.00	-28.50	peak	H
9	6719.000	-70.44	26.78	-43.66	-13.00	-30.66	peak	H
1	92.5000	-67.30	-4.73	-72.03	-13.00	-59.03	peak	V
2	130.0000	-80.65	14.37	-66.28	-13.00	-53.28	peak	V
3	158.5000	-79.65	11.96	-67.69	-13.00	-54.69	peak	V
4	201.0000	-81.34	10.04	-71.30	-13.00	-58.30	peak	V
5	672.0000	-79.80	9.49	-70.31	-13.00	-57.31	peak	V
6	952.0000	-80.68	12.53	-68.15	-13.00	-55.15	peak	V
7	1882.000	-64.30	8.58	-55.72	-13.00	-42.72	peak	V
8	3758.000	-56.22	20.06	-36.16	-13.00	-23.16	peak	V
9	6859.000	-70.04	25.34	-44.70	-13.00	-31.70	peak	V



Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	Doro PhoneEasy 610	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2012/01/19
Frequency:	1909.8 MHz	Test By:	Fly Lu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar.
1	37.0000	-79.31	8.74	-70.57	-13.00	-57.57	peak	H
2	92.5000	-72.16	-0.43	-72.59	-13.00	-59.59	peak	H
3	157.0000	-77.89	0.49	-77.40	-13.00	-64.40	peak	H
4	200.5000	-79.52	2.83	-76.69	-13.00	-63.69	peak	H
5	539.0000	-79.71	8.24	-71.47	-13.00	-58.47	peak	H
6	935.0000	-80.35	14.83	-65.52	-13.00	-52.52	peak	H
7	1700.000	-64.82	10.44	-54.38	-13.00	-41.38	peak	H
8	3821.000	-58.41	16.11	-42.30	-13.00	-29.30	peak	H
9	7209.000	-70.95	28.25	-42.70	-13.00	-29.70	peak	H
1	92.5000	-69.06	-4.73	-73.79	-13.00	-60.79	peak	V
2	130.5000	-81.15	14.09	-67.06	-13.00	-54.06	peak	V
3	160.5000	-80.59	12.20	-68.39	-13.00	-55.39	peak	V
4	205.5000	-80.86	9.48	-71.38	-13.00	-58.38	peak	V
5	656.5000	-79.29	9.26	-70.03	-13.00	-57.03	peak	V
6	893.5000	-80.00	10.68	-69.32	-13.00	-56.32	peak	V
7	1910.000	-64.31	8.81	-55.50	-13.00	-42.50	peak	V
8	3821.000	-55.81	20.21	-35.60	-13.00	-22.60	peak	V
9	5732.000	-67.54	23.15	-44.39	-13.00	-31.39	peak	V

7 Frequency Stability (Temperature Variation) Test

7.1. 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.

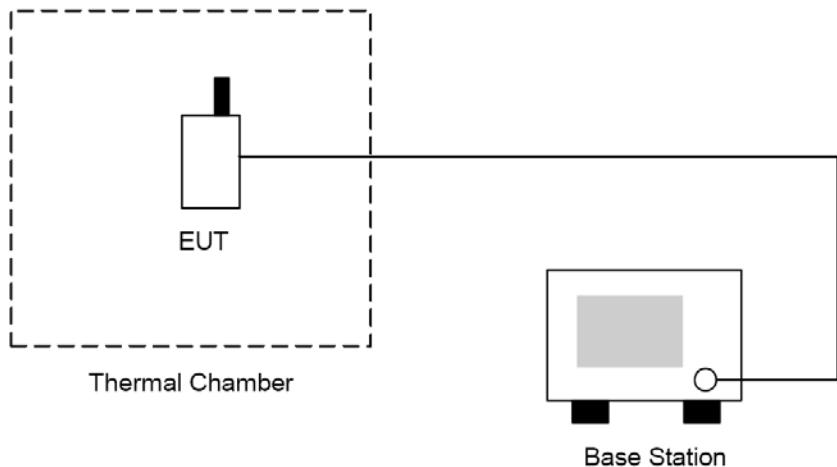
7.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	08/10/2010	⁽²⁾
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/24/2011	⁽¹⁾
Test Site	ATL	TE02	TE02	N.C.R.	-----

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

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 noted 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 temperature tests were performed for the worst case.
5. Test data was recorded.

7.5. Uncertainty

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



7.6. Test Result

Model Number	Doro PhoneEasy 610			
Test Item	Frequency Stability (Temperature Variation)			
Test Mode	Mode 1: GSM 1900 Link			
Date of Test	01/18/2012		Test Site	TE02
Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Result
-30	-27	-0.014	±2.5	Pass
-20	-25	-0.013	±2.5	Pass
-10	-30	-0.016	±2.5	Pass
0	-26	-0.014	±2.5	Pass
10	-24	-0.013	±2.5	Pass
20	-21	-0.011	±2.5	Pass
30	-25	-0.013	±2.5	Pass
40	-28	-0.015	±2.5	Pass
50	-29	-0.015	±2.5	Pass

8 Frequency Stability (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.

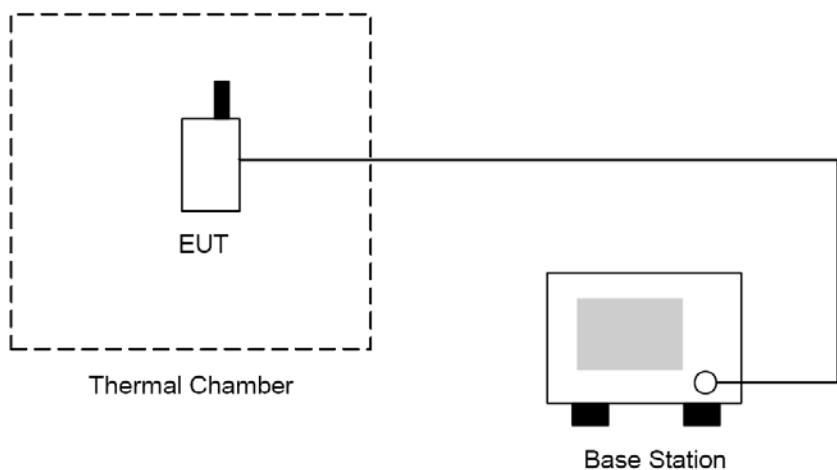
8.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	08/10/2010	⁽²⁾
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/24/2011	⁽¹⁾
Test Site	ATL	TE02	TE02	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

1. The EUT was placed in a temperature chamber at $25 \pm 5^\circ\text{C}$ and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

8.5. Uncertainty

The measurement uncertainty is defined as for Frequency Stability (Voltage Variation) measurement is \pm 10Hz.

8.6. Test Result

Model Number	Doro PhoneEasy 610				
Test Item	Frequency Stability (Voltage Variation)				
Test Mode	Mode 1: GSM 1900 Link				
Date of Test	01/18/2012		Test Site	TE02	
Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]	Result
Battery full point	4.20	-35	-0.019	± 2.5	Pass
Normal	3.70	-28	-0.015	± 2.5	Pass
Battery cut-off point	3.40	-26	-0.014	± 2.5	Pass