Variant FCC RF Test Report

APPLICANT	:	Doro AB
EQUIPMENT	:	Mobile Telephone
BRAND NAME	:	Doro
MODEL NAME	:	Doro PhoneEasy 618
FCC ID	:	WS5DORO618
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DSS) Spread Spectrum Transmitter

This is a variant report which is only valid together with the original test report. The product was received on Mar. 11, 2013 and completely tested on Apr. 08, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR240603-04	Rev. 01	This is a variant report for Doro PhoneEasy 618. The product equality declaration could be referred to Appendix C. All test cases were performed on original report which can be referred to SPORTON Report Number FR240603. Based on the original test report, only the Conducted Power and Radiated Spurious Emissions were verified.	Apr. 09, 2013
FR240603-04	Rev. 02	Update report for revising the Software Version.	Apr. 11, 2013
FR240603-04	Rev. 03	Update report for revising the Software Version.	Apr. 24, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(b)(1)	A8.1(b)	Peak Output Power	≤ 1 w for 1Mbps ≤ 125 Mw for 2, 3Mbps	Pass	-
3.2	15.247(d)	A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 7.97 dB at 59.860 MHz
3.3	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Doro AB
Magistratsvägen 10 SE-226 43 Lund Sweden

1.2 Manufacturer

CK TELECOM LTD.
Technology Road, High-Tech Development Zone, Heyuan, Guangdong, P.R.China.

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Telephone
Brand Name	Doro
Model Name	Doro PhoneEasy 618
FCC ID	WS5DORO618
EUT supports Radios application	GSM/GPRS/WCDMA/Bluetooth
HW Version	APPLE-V2.0
SW Version	APPLE-S01B_DORO618_L3EN_206_130423
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Maximum Output Power to Antenna	Bluetooth BDR (1Mbps) : 4.96 dBm (0.0031 W) Bluetooth EDR (2Mbps) : 4.73 dBm (0.0030 W) Bluetooth EDR (3Mbps) : 5.00 dBm (0.0032 W)
Antenna Type	PIFA Antenna type
Type of Modulation	Bluetooth BDR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

1.5 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	TH01-KS	03CH01-KS	149928/4086E-1

The test site complies with ANSI C63.4 2003 requirement.

1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.10-2009

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Preliminary tests were performed in different data rate and recorded the RF output power in the following table:

Channel	Frequency	Bluetooth RF Output Power		
		Data Rate / Modulation		
		GFSK	π /4-DQPSK	8-DPSK
		1Mbps	2Mbps	3Mbps
Ch00	2402MHz	3.54 dBm	3.30 dBm	3.57 dBm
Ch39	2441MHz	4.96 dBm	4.73 dBm	**5.00 dBm**
Ch78	2480MHz	4.78 dBm	4.50 dBm	4.75 dBm

Remark:

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The data rate was set in 3Mbps for all the test items due to the highest RF output power.

a. The EUT has been associated with peripherals pursuant to ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 KHz to 30 MHz), radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests, X, Y, Z in three orthogonal panels, and different data rates were conducted to determine the final configuration (Y plane as worst plane) from all possible combinations, and the worst mode of radiated spurious emissions is Bluetooth 3Mbps mode, and recorded in this report.

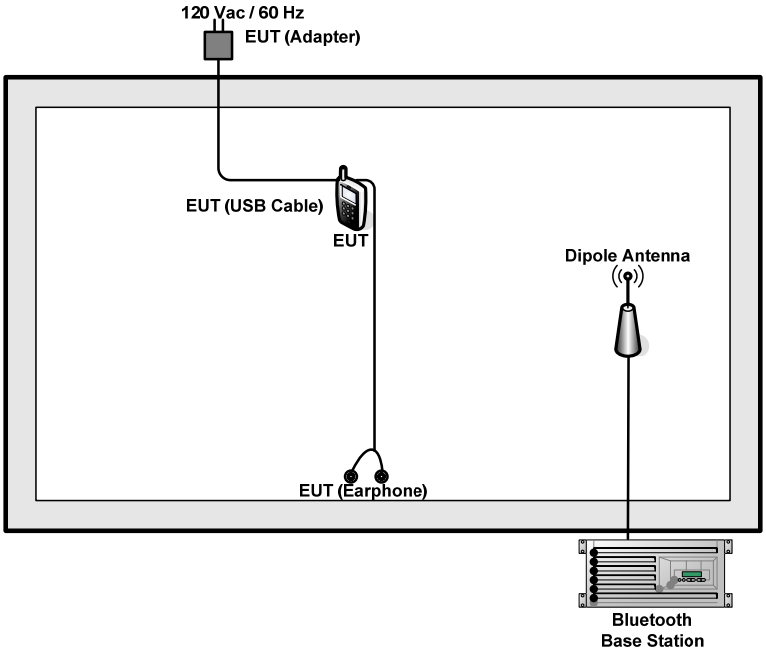
2.2 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases			
Test Item	Data Rate / Modulation		
	Bluetooth BDR 1Mbps GFSK	Bluetooth EDR 2Mbps π/4-DQPSK	Bluetooth EDR 3Mbps 8-DPSK
Conducted Test Cases	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz	Mode 4: CH00_2402 MHz Mode 5: CH39_2441 MHz Mode 6: CH78_2480 MHz	Mode 7: CH00_2402 MHz Mode 8: CH39_2441 MHz Mode 9: CH78_2480 MHz
Radiated Test Cases	Bluetooth EDR 3Mbps 8-DPSK		
	Mode 1: CH00_2402 MHz Mode 2: CH39_2441 MHz Mode 3: CH78_2480 MHz		

Remark: For radiated test cases, the worst mode data rate 3Mbps was reported only, because this data rate has the highest RF output power at preliminary tests, and the conducted spurious emissions and conducted band edge measurement for each data rate are no worse than 3Mbps, and no other significantly frequencies found in conducted spurious emission.

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT	FCC DoC	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2.5 Description of RF Function Operation Test Setup

For Bluetooth function, key in“＊＃13646633＃” on the EUT directly. Then, the EUT will get into the engineering modes to contact with Bluetooth base station for continuous transmitting and receiving signals.

2.6 Measurement Results Explanation Example

For radiated band edges and spurious emission test :

Per part 15.35(c), the EUT Bluetooth average emission level could be determined by the peak emission level applying duty cycle correction factor, to represent averaging over the whole pulse train.

The average level is derived from the peak level corrected with “Duty cycle correction factor”.

Average Emission Level(dBuV/m) = Peak Emission Level(dBuV/m) + Duty cycle correction factor(dB)

*Duty cycle correction factor(dB) = 20 * log(Duty cycle).*
Duty cycle = On time / 100 milliseconds
On time = dwell time * hopping number in 100 ms

For example : bluetooth with dwell time 2.9ms and 2 hops in 100 ms, then
Duty cycle correction factor(dB) = 20 * log((2.9 * 2) / 100) = -24.73 dB

Following shows an average computation example with duty cycle correction factor = -24.73dB, and the peak emission level is 45.61 dBuV/m.

Example :
Average Emission Level(dBuV/m) = Peak Emission Level(dBuV/m) + duty cycle correction factor(dB)
= 45.61 + (-24.73) = 20.88 (dBuV/m)

3 Test Result

3.1 Peak Output Power Measurement

3.1.1 Limit of Peak Output Power

Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts. The power limit for 1Mbps is 1watt, and for 2Mbps, and 3Mbps are 0.125 watts.

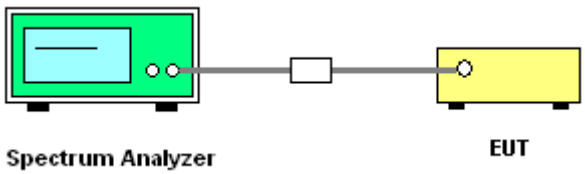
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Measure the conducted output power with cable loss and record the results in the test report.
4. Measure and record the results in the test report.

3.1.4 Test Setup

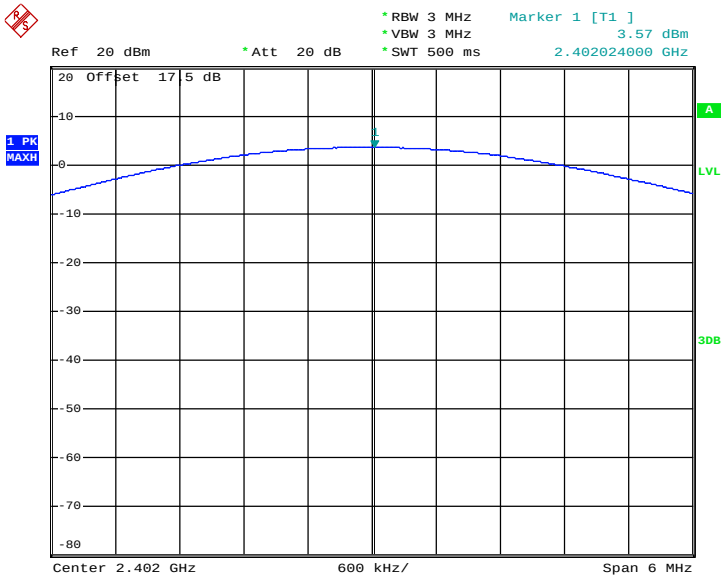


3.1.5 Test Result of Peak Output Power

Test Mode :	3Mbps	**Temperature :**	21~22°C
Test Engineer :	Lizy Li	**Relative Humidity :**	41~42%

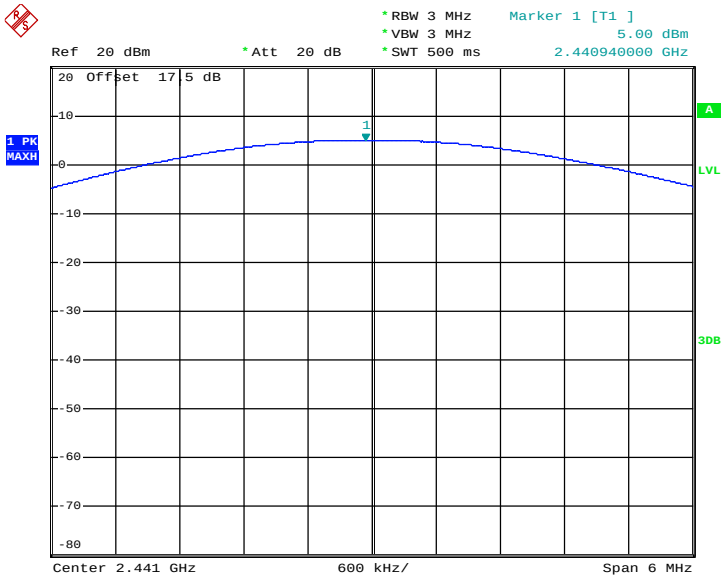
Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		3 Mbps		
00	2402	3.57	20.97	Pass
39	2441	5.00	20.97	Pass
78	2480	4.75	20.97	Pass

Peak Output Power Plot on Channel 00



Date: 28.MAR.2013 15:40:17

Peak Output Power Plot on Channel 39



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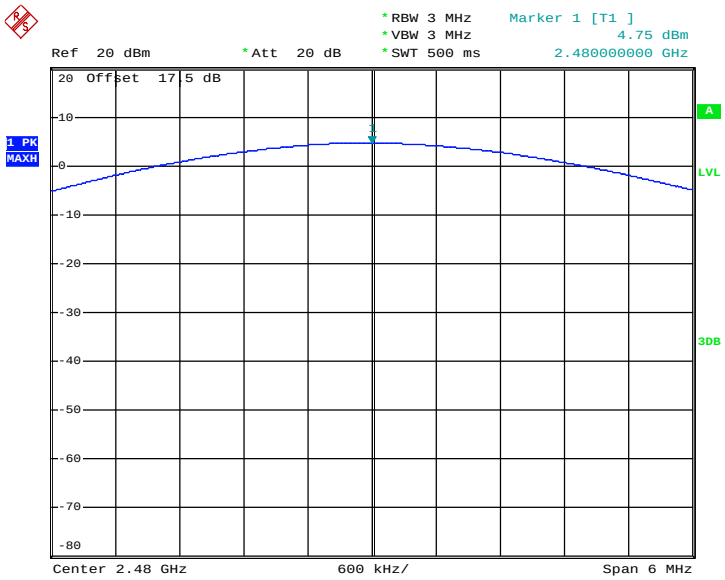
Peak Output Power Plot on Channel 78



Date: 28.MAR.2013 15:41:03

3.2 Radiated Band Edges and Spurious Emission Measurement

3.2.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

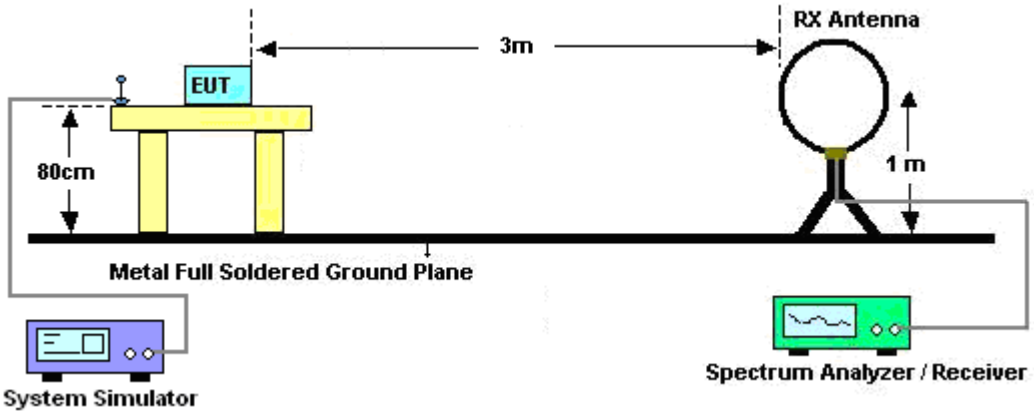
3.2.3 Test Procedures

1. The testing follows the guidelines in Spurious Radiated Emissions of FCC Public Notice DA 00-705 Measurement Guidelines and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 KHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = $N_1*L_1+N_2*L_2+...+N_{n-1}*LN_{n-1}+N_n*L_n$
   Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
   Average Level = Peak Level + 20*log(Duty cycle)
8. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

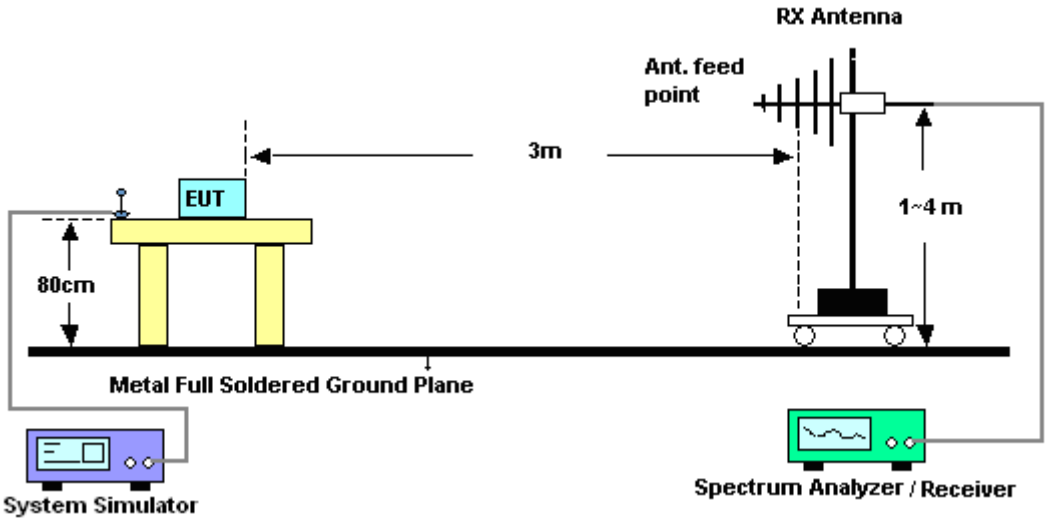
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.74dB for Sample 1 and Sample 2, 24.79dB for Sample 3) derived from 20log (dwell time/100ms).

3.2.4 Test Setup

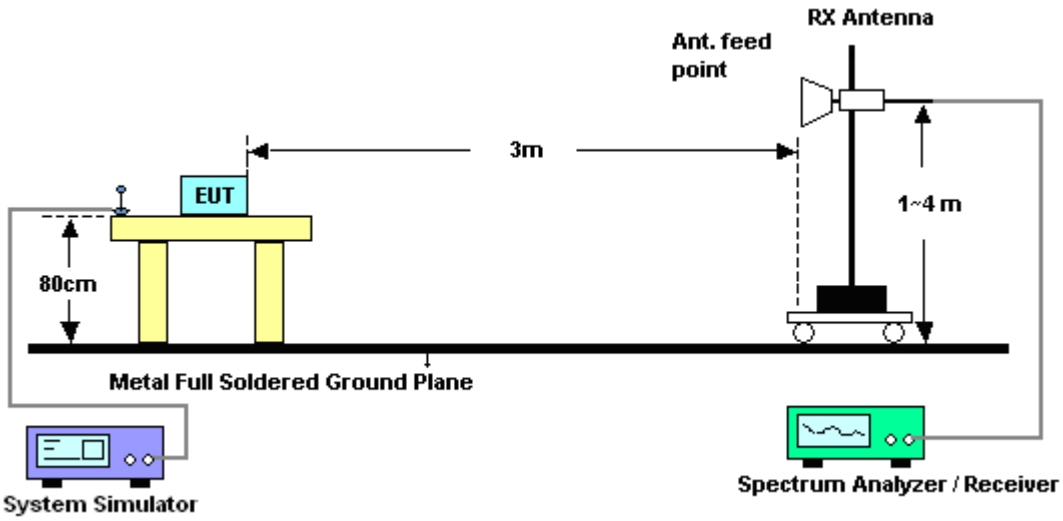
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



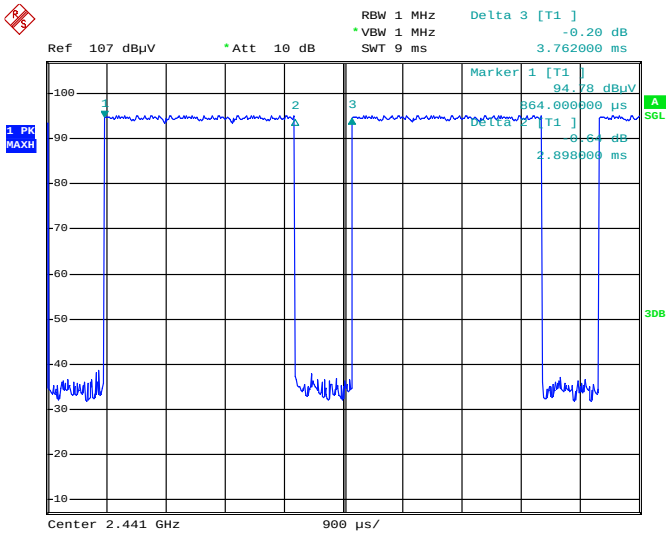
3.2.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.2.6 Duty cycle correction factor for average measurement

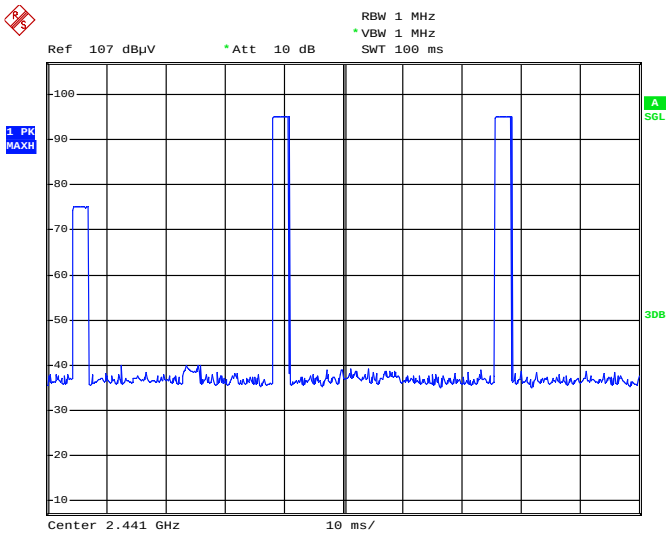
<For Sample 1>

3DH5 on time/100ms (One Pulse) Plot on Channel 39



Date: 29.MAR.2013 11:45:03

3DH5 on time/100ms (Count Pulses) Plot on Channel 39



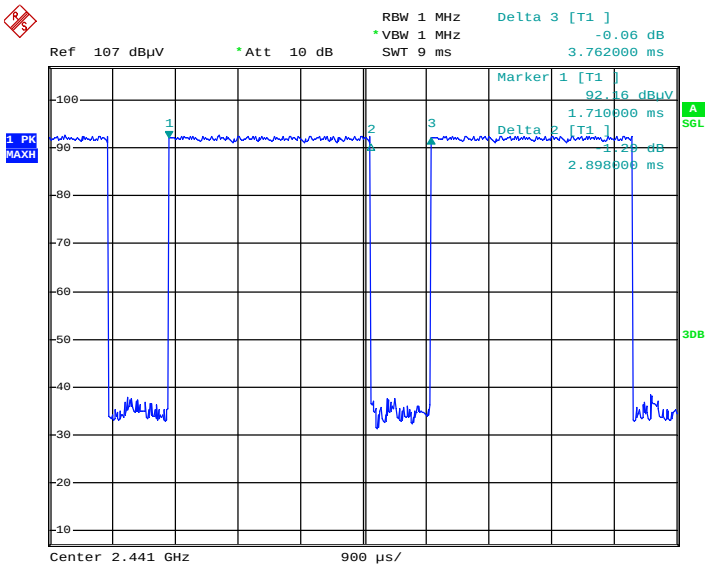
Date: 29.MAR.2013 11:47:52

Note:

1. Duty cycle = on time/100 milliseconds = 2 * 2.898 / 100 = 5.80 %
2. Duty cycle correction factor = 20*log(Duty cycle) = -24.74 dB
3. 3DH5 has the highest duty cycle and is reported.

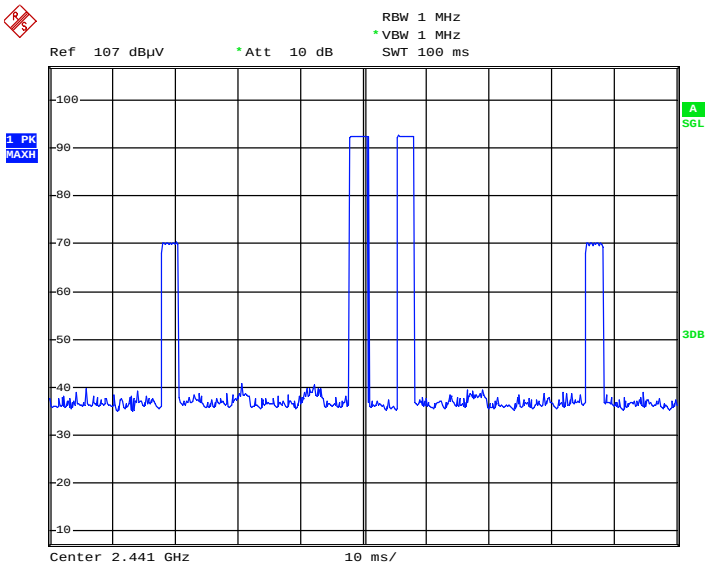
<For Sample 2>

3DH5 on time/100ms (One Pulse) Plot on Channel 39



Date: 29.MAR.2013 11:56:17

3DH5 on time/100ms (Count Pulses) Plot on Channel 39



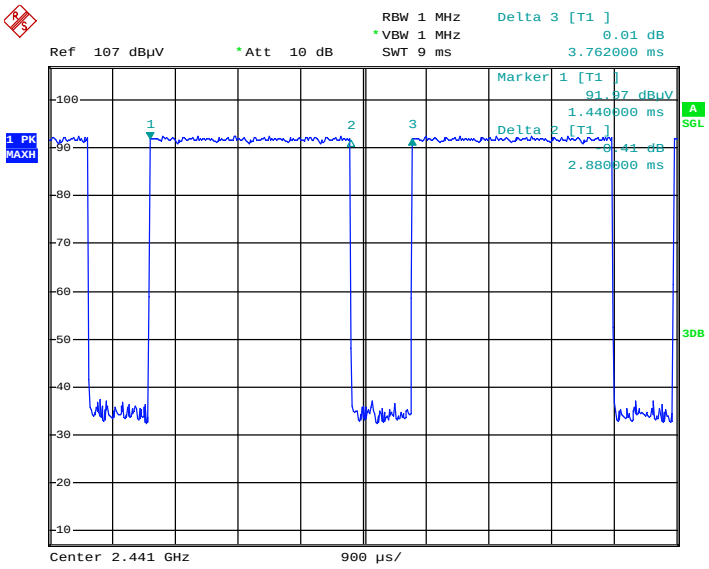
Date: 29.MAR.2013 11:56:58

Note:

1. Duty cycle = on time/100 milliseconds = 2 * 2.898 / 100 = 5.80 %
2. Duty cycle correction factor = 20*log(Duty cycle) = -24.74 dB
3. 3DH5 has the highest duty cycle and is reported.

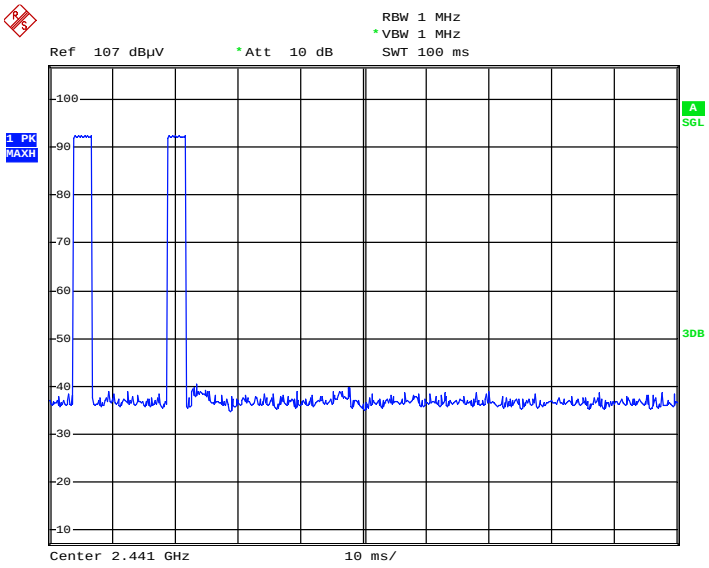
<For Sample 3>

3DH5 on time/100ms (One Pulse) Plot on Channel 39



Date: 29.MAR.2013 12:03:32

3DH5 on time/100ms (Count Pulses) Plot on Channel 39



Date: 29.MAR.2013 12:04:11

Note:

1. Duty cycle = on time/100 milliseconds = 2 * 2.88 / 100 = 5.76 %
2. Duty cycle correction factor = 20*log(Duty cycle) = -24.79 dB
3. 3DH5 has the highest duty cycle and is reported.

3.2.7 Test Result of Radiated Band Edges

<For Sample 1>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2313	52.29	-21.71	74	46.88	32.02	4.3	30.91	109	104	Peak
2313	27.55	-26.45	54	-	-	-	-	109	104	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2343	51.71	-22.29	74	46.2	32.07	4.34	30.9	127	27	Peak
2343	26.97	-27.03	54	-	-	-	-	127	27	Average

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.74dB) derived from 20log (dwell time/100ms).

For example: Average level = 51.71dBuV/m – 24.74 (dB) = 26.97dBuV/m.

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2494	51.12	-22.88	74	45.11	32.29	4.49	30.77	109	104	Peak
2494	26.38	-27.62	54	-	-	-	-	109	104	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487	51.29	-22.71	74	45.33	32.27	4.47	30.78	127	27	Peak
2487	26.55	-27.45	54	-	-	-	-	127	27	Average

<For Sample 2>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBµV/m)**	**Over Limit (dB)**	**Limit Line (dBµV/m)**	**Read Level (dBµV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2327	51.84	-22.16	74	46.36	32.05	4.34	30.91	137	333	Peak
2327	27.1	-26.9	54	-	-	-	-	137	333	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBµV/m)**	**Over Limit (dB)**	**Limit Line (dBµV/m)**	**Read Level (dBµV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2379	51.73	-22.27	74	46.05	32.12	4.42	30.86	153	83	Peak
2379	26.99	-27.01	54	-	-	-	-	153	83	Average

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.74dB) derived from 20log (dwell time/100ms).

For example: Average level = 51.73dBuV/m – 24.74 (dB) = 26.99dBuV/m.

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBµV/m)**	**Over Limit (dB)**	**Limit Line (dBµV/m)**	**Read Level (dBµV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2498	51.33	-22.67	74	45.32	32.29	4.49	30.77	137	333	Peak
2498	26.59	-27.41	54	-	-	-	-	137	333	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBµV/m)**	**Over Limit (dB)**	**Limit Line (dBµV/m)**	**Read Level (dBµV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2486	50.96	-23.04	74	45	32.27	4.47	30.78	153	83	Peak
2486	26.22	-27.78	54	-	-	-	-	153	83	Peak

<For Sample 3>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2312	52.17	-21.83	74	46.76	32.02	4.3	30.91	135	350	Peak
2312	27.38	-26.62	54	-	-	-	-	135	350	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2310	51.41	-22.59	74	46.01	32.02	4.3	30.92	100	55	Peak
2310	26.62	-27.38	54	-	-	-	-	100	55	Average

Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (24.79dB) derived from 20log (dwell time/100ms).

For example: Average level = 51.41dBuV/m – 24.79 (dB) = 26.62dBuV/m.

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
		Test Engineer :	Stone Gu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2489	51.79	-22.21	74	45.78	32.29	4.49	30.77	135	350	Peak
2489	27	-27	54	-	-	-	-	135	350	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2491	51.14	-22.86	74	45.13	32.29	4.49	30.77	100	55	Peak
2491	26.35	-27.65	54	-	-	-	-	100	55	Average

3.2.8 Test Result of Radiated Emission (30 MHz ~ 10th Harmonic)

NOTE: Below 1GHz for radiated emission measurement, pre-scanned all test modes and only choose the worst case mode was recorded in the report.

<For Sample 1>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	23.78	-16.22	40	44.75	12.29	0.38	33.64	-	-	Peak
59.86	27.8	-12.2	40	55.62	5.29	0.47	33.58	198	32	Peak
99.88	23.72	-19.78	43.5	46.27	10.49	0.57	33.61	-	-	Peak
197.89	28.07	-15.43	43.5	51.92	8.89	0.81	33.55	-	-	Peak
318.82	26.32	-19.68	46	45.15	13.51	1.02	33.36	-	-	Peak
422.06	24	-22	46	39.97	16.12	1.16	33.25	-	-	Peak
2441	107.64	-	-	104.08	32.94	2.13	31.51	109	104	Peak
2441	82.85	-	-	-	-	-	-	109	104	Average
4882	48.58	-25.42	74	41.81	35.18	3.11	31.52	100	112	Peak
7323	50.09	-23.91	74	41.63	36.2	3.2	30.94	100	162	Peak

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	30.97	-9.03	40	51.94	12.29	0.38	33.64	-	-	Peak
59.86	32.03	-7.97	40	59.85	5.29	0.47	33.58	200	0	Peak
103.08	32.84	-10.66	43.5	54.99	10.88	0.58	33.61	-	-	Peak
194.45	26.6	-16.9	43.5	50.61	8.74	0.8	33.55	-	-	Peak
259.23	30.97	-15.03	46	51.35	12.12	0.92	33.42	-	-	Peak
475.50	25.92	-20.08	46	41.09	16.74	1.25	33.16	-	-	Peak
2441	105.18	-	-	101.62	32.94	2.13	31.51	127	27	Peak
2441	80.39	-	-	-	-	-	-	127	27	Average
4882	47.33	-26.67	74	40.56	35.18	3.11	31.52	100	72	Peak
7323	49.63	-24.37	74	41.17	36.2	3.2	30.94	100	256	Peak

Note: Other harmonics are lower than background noise.

<For Sample 2>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	24.47	-15.53	40	45.44	12.29	0.38	33.64	-	-	Peak
59.86	26.12	-13.88	40	53.94	5.29	0.47	33.58	189	347	Peak
109.03	25.31	-18.19	43.5	46.66	11.66	0.59	33.6	-	-	Peak
199.99	24.53	-18.97	43.5	48.28	8.99	0.81	33.55	-	-	Peak
282.99	23.8	-22.2	46	43.51	12.71	0.96	33.38	-	-	Peak
403.25	26.13	-19.87	46	42.27	16.01	1.14	33.29	-	-	Peak
2441	107.05	-	-	103.49	32.94	2.13	31.51	137	333	Peak
2441	82.26	-	-	-	-	-	-	137	333	Average
4882	48.31	-25.69	74	41.54	35.18	3.11	31.52	135	27	Peak
7323	50.85	-23.15	74	42.39	36.2	3.2	30.94	127	344	Peak

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Vertical
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	24.26	-15.74	40	45.23	12.29	0.38	33.64	-	-	Peak
59.86	31.7	-8.3	40	59.52	5.29	0.47	33.58	120	250	Peak
107.51	30.94	-12.56	43.5	52.43	11.53	0.58	33.6	-	-	Peak
130.38	27.75	-15.75	43.5	48.97	11.69	0.67	33.58	-	-	Peak
263.82	27.76	-18.24	46	48.03	12.22	0.93	33.42	-	-	Peak
330.19	30.37	-15.63	46	48.74	13.94	1.05	33.36	-	-	Peak
2441	104.47	-	-	100.91	32.94	2.13	31.51	153	83	Peak
2441	79.68	-	-	-	-	-	-	153	83	Average
4882	47.09	-26.91	74	40.32	35.18	3.11	31.52	100	191	Peak
7323	51.37	-22.63	74	42.91	36.2	3.2	30.94	100	233	Peak

Note: Other harmonics are lower than background noise.

<For Sample 3>

Test Mode :	3Mbps	**Temperature :**	23~24°C
Test Channel :	39	**Relative Humidity :**	43~44%
Test Engineer :	Stone Gu	**Polarization :**	Horizontal
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	22.37	-17.63	40	43.34	12.29	0.38	33.64	-	-	Peak
59.86	28.03	-11.97	40	55.85	5.29	0.47	33.58	200	16	Peak
129.01	24.53	-18.97	43.5	45.74	11.7	0.67	33.58	-	-	Peak
265.68	24.51	-21.49	46	44.72	12.27	0.93	33.41	-	-	Peak
322.19	25.69	-20.31	46	44.4	13.62	1.03	33.36	-	-	Peak
403.25	26.81	-19.19	46	42.95	16.01	1.14	33.29	-	-	Peak
2441	107.33	-	-	103.77	32.94	2.13	31.51	135	350	Peak
2441	82.59	-	-	-	-	-	-	135	350	Average
4882	46.71	-27.29	74	39.94	35.18	3.11	31.52	100	250	Peak
7323	50.05	-23.95	74	41.59	36.2	3.2	30.94	100	255	Peak

Note: Other harmonics are lower than background noise.

Test Mode :	3Mbps	Temperature :	23~24°C
Test Channel :	39	Relative Humidity :	43~44%
Test Engineer :	Stone Gu	Polarization :	Vertical
Remark :	1. 2441 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.99	23	-17	40	43.97	12.29	0.38	33.64	-	-	Peak
59.86	28.49	-11.51	40	56.31	5.29	0.47	33.58	200	0	Peak
99.88	30.38	-13.12	43.5	52.93	10.49	0.57	33.61	-	-	Peak
107.89	29.75	-13.75	43.5	51.23	11.53	0.59	33.6	-	-	Peak
131.76	27.96	-15.54	43.5	49.33	11.53	0.68	33.58	-	-	Peak
257.42	26.48	-19.52	46	46.89	12.09	0.92	33.42	-	-	Peak
2441	104.9	-	-	101.34	32.94	2.13	31.51	100	55	Peak
2441	80.16	-	-	-	-	-	-	100	55	Average
4882	48.08	-25.92	74	41.31	35.18	3.11	31.52	200	320	Peak
7323	50.53	-23.47	74	42.07	36.2	3.2	30.94	180	320	Peak

Note: Other harmonics are lower than background noise.

3.3 Antenna Requirements

3.3.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.3.2 Antenna Connected Construction

Non-standard connector used.

3.3.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	Mar. 28, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 22, 2012	Mar. 28, 2013	Aug. 21, 2013	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 22, 2012	Mar. 28, 2013	Aug. 21, 2013	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 22, 2012	Mar. 28, 2013	Aug. 21, 2013	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 29, 2012	Mar. 28, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Bluetooth Base Station	R&S	CBT	100783	N/A	Aug. 17, 2012	Mar. 28, 2013	Aug. 16, 2013	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Mar. 31, 2013~ Apr. 08, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	100400	9kHz~30GHz	Jun. 01, 2012	Mar. 31, 2013~ Apr. 08, 2013	May 31, 2013	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	Mar. 31, 2013~ Apr. 08, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9KHZ-30MHZ	N/A	Mar. 31, 2013~ Apr. 08, 2013	N/A	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	1908/7/13	00075957	1GHz~18GHz	Dec. 07, 2012	Mar. 31, 2013~ Apr. 08, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	Jun. 01, 2012	Mar. 31, 2013~ Apr. 08, 2013	May 31, 2013	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	Mar. 31, 2013~ Apr. 08, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2012	Mar. 31, 2013~ Apr. 08, 2013	Nov. 06, 2013	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	9170249	15GHz~40GHz	Nov. 23, 2012	Mar. 31, 2013~ Apr. 08, 2013	Nov. 22, 2013	Radiation (03CH01-KS)
Bluetooth Base Station	R&S	CBT	100783	N/A	Aug. 17, 2012	Mar. 31, 2013~ Apr. 08, 2013	Aug. 16, 2013	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**

Appendix A. Photographs of EUT

Please refer to Sporton report number EP240603-04 as below.

Appendix C. Product Equality Declaratio

CK TELECOM LIMITED

Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.
TEL:0755-26739633/FAX:0755-26739500

Date: May 6, 2013

Product Equality Declaration

We, CK TELECOM LIMITED, declare on our sole responsibility for the product of Doro PhoneEasy 618(model) as below:

1、LCD model by TFT1N5757-E change to TFT1N5819-E
2、SIM Card by KWS6156N20R change to CAF99-06153-S527
3、Flash Memory by TY9A0A111300KA40 Change to TY9A0A111527K*
4、Software Version by APPLE-S01A_DORO618_L3EN_201_121106 change to APPLE-S01B_DORO618_L3EN_206_130423

Except Listings above, the others are the same as previous version.

Should you have any questions or comments regarding this matter, please have my best attention.

Sincerely yours,

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Fax: +86-755-26739500
E-Mail: xin.li@ck-telecom.com