Variant FCC RF Test Report

APPLICANT	:	Doro AB
EQUIPMENT	:	GSM/GPRS WCDMA Mobile Telephone
BRAND NAME	:	doro
MODEL NAME	:	Doro PhoneEasy 626
MARKETING NAME	:	Doro PhoneEasy 626
FCC ID	:	WS5DORO626
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 Aug. 10, 2016 and testing was completed on Oct. 01, 2016. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Prepared by: Ken Chen / Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

SPORTON INTERNATIONAL (SHENZHEN) INC.
1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR312203-05	Rev. 01	This is a variant report for Doro PhoneEasy 626. The product equality declaration could be referred to Appendix D. Based on the similarity between two models, only the conducted power, Conducted Emission, and the worst cases of Radiated Emission from original test report (Sporton Report Number FR312203-01) were verified for the differences.	Oct. 28, 2016
FR312203-05	Rev. 02	Updated report for revising SW version.	Nov. 03, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(b)(1)	RSS-247 5.4(2)	Peak Output Power	≤ 125 mW	Pass	-
3.2	15.247(d)	RSS-247 5.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 7.96 dB at 37.760 MHz
3.3	15.207	RSS-Gen 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit 14.03 dB at 1.220 MHz
3.4	15.203 & 15.247(b)	N/A	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 Product Feature of Equipment Under Test

Product Feature	
Equipment	GSM/GPRS WCDMA Mobile Telephone
Brand Name	doro
Model Name	Doro PhoneEasy 626
Marketing Name	Doro PhoneEasy 626
FCC ID	WS5DORO626
EUT supports Radios application	GSM/GPRS/WCDMA/HSPA/Bluetooth v2.1 + EDR
IMEI Code	Conduction: 359574055659750 Radiation: 359574055659693
HW Version	SHUTTLE-V2.0_1031
SW Version	SHUTTLE-S13A_DORO626_L3EN_307_160913
EUT Stage	Production Unit

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

Standards-related Product Specification	
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 BR(1Mbps) : 8.04 dBm (0.0064 W) Bluetooth EDR (2Mbps) : 7.91 dBm (0.0062 W) Bluetooth EDR (3Mbps) : 8.13 dBm (0.0065 W)
Antenna Type/Gain	PIFA Antenna with gain -2.00 dBi
Type of Modulation	Bluetooth BR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton Site No.**	
	CO01-SZ	

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	**Sporton Site No.**	**FCC/IC Registration No.**
	03CH02-SZ	566869/4086F

Note: The test site complies with ANSI C63.4 2014 requirement.

1.7 Applicable 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
- ANSI C63.10-2013
- IC RSS-247 Issue 1
- IC RSS-Gen Issue 4

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 rates 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	6.18 dBm	6.01 dBm	6.21 dBm
Ch39	2441MHz	7.19 dBm	7.04 dBm	7.24 dBm
Ch78	2480MHz	8.04 dBm	7.91 dBm	**8.13 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 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 (X 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.

b. AC power line Conducted Emission was tested under maximum output power.

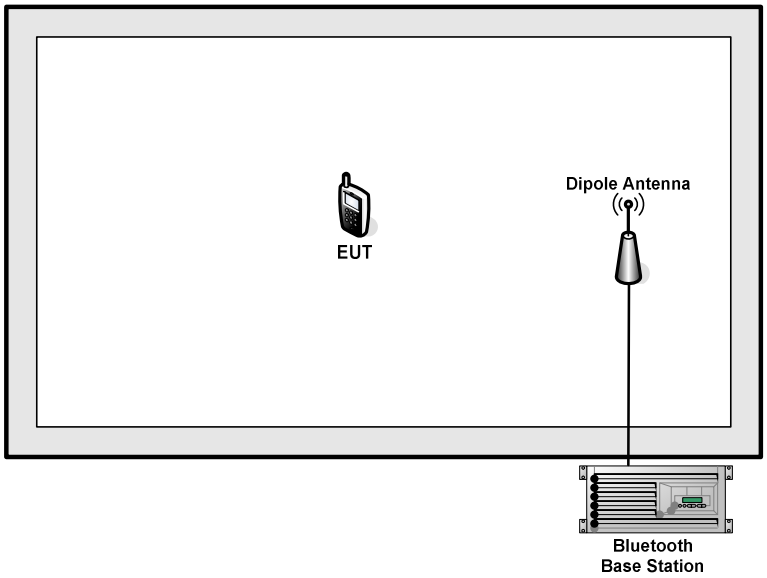
2.2 Test Mode

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

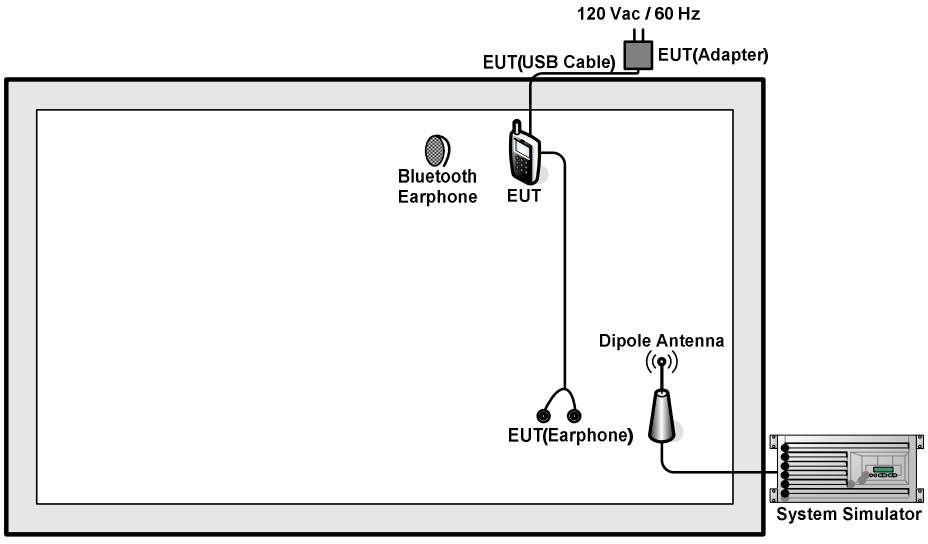
Summary table of Test Cases	
Test Item	**Data Rate / Modulation**
Radiated Test Cases	**Bluetooth EDR 3Mbps 8-DPSK**
	Mode 1: CH78_2480 MHz
AC Conducted Emission	Mode 1 :GSM850 Idle + Bluetooth Link + Earphone + USB Cable 3(Charging from Adapter 2) for Sample 1

2.3 Connection Diagram of Test System

<Bluetooth Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMW 500	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Base Station	R&S	CBT	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A
4.	SD Card	SanDisk	4G class 4	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

For Bluetooth function, the engineering test program was provided and enabled to make EUT connect with Bluetooth base station to continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to Link with Bluetooth Earphone.

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.

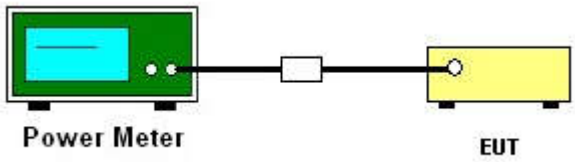
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
1. The RF output of EUT was connected to the power meter 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 :	1Mbps	Temperature :	24~26℃
Test Engineer :	Sam Zheng	Relative Humidity :	50~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		GFSK	Max. Limits (dBm)	Pass/Fail
		1 Mbps		
00	2402	6.18	20.97	Pass
39	2441	7.19	20.97	Pass
78	2480	8.04	20.97	Pass

Test Mode :	2Mbps	Temperature :	24~26℃
Test Engineer :	Sam Zheng	Relative Humidity :	50~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		π/4-DQPSK	Max. Limits (dBm)	Pass/Fail
		2 Mbps		
00	2402	6.01	20.97	Pass
39	2441	7.04	20.97	Pass
78	2480	7.91	20.97	Pass

Test Mode :	3Mbps	Temperature :	24~26℃
Test Engineer :	Sam Zheng	Relative Humidity :	50~53%

Channel	Frequency (MHz)	RF Power (dBm)		
		8-DPSK	Max. Limits (dBm)	Pass/Fail
		3 Mbps		
00	2402	6.21	20.97	Pass
39	2441	7.24	20.97	Pass
78	2480	8.13	20.97	Pass

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

The measuring equipment is listed in the section 4 of this test report.

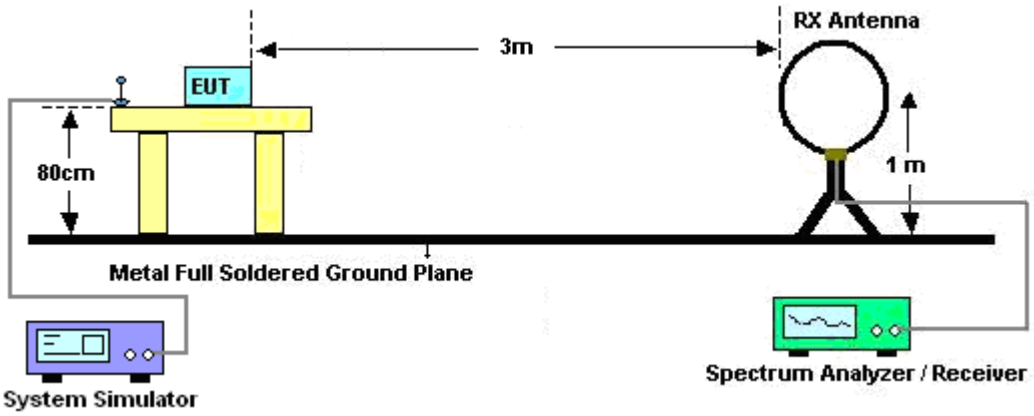
3.2.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. 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.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. 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 Emission Level = Peak Emission Level + 20*log(Duty cycle)
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

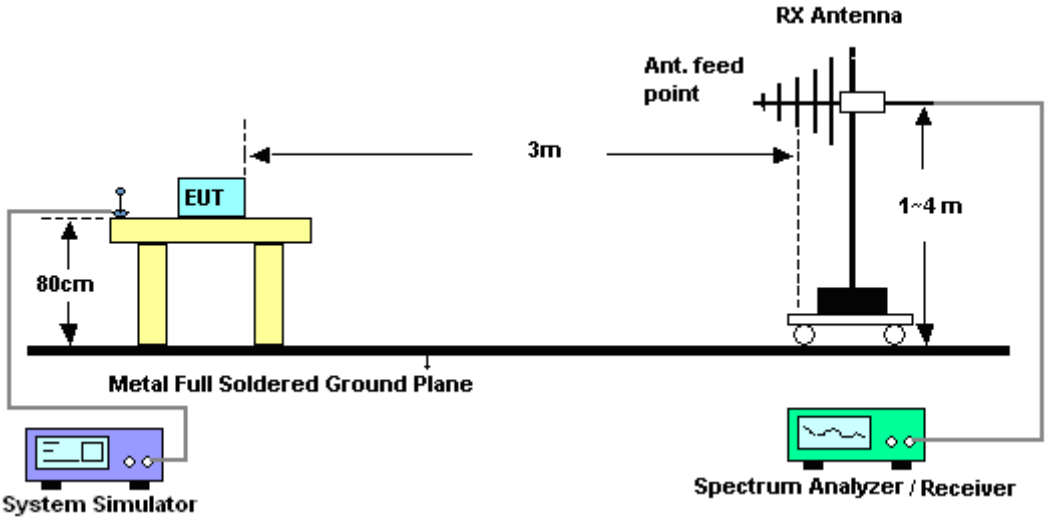
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.85dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

3.2.4 Test Setup

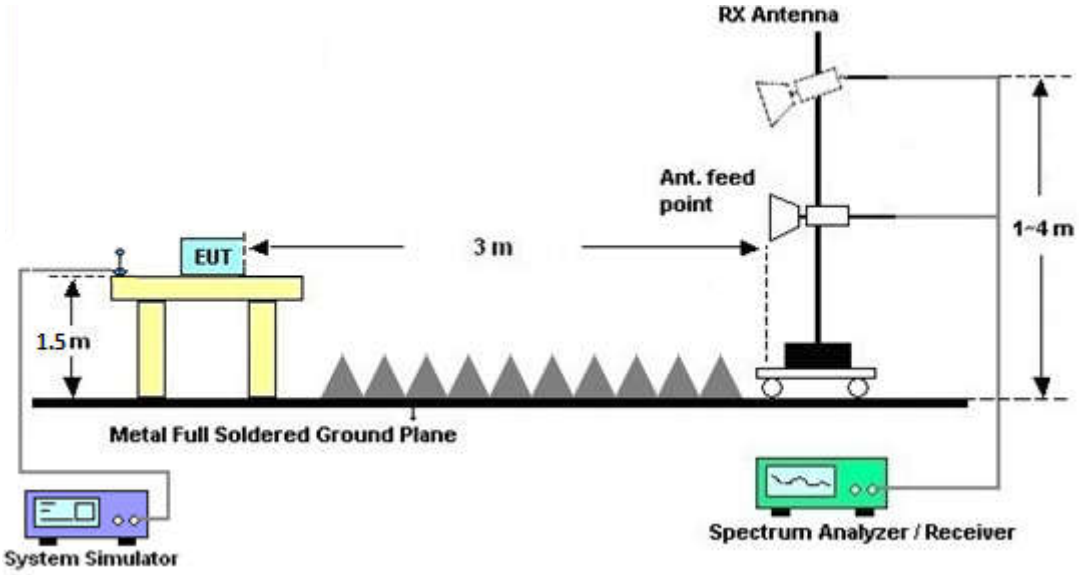
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

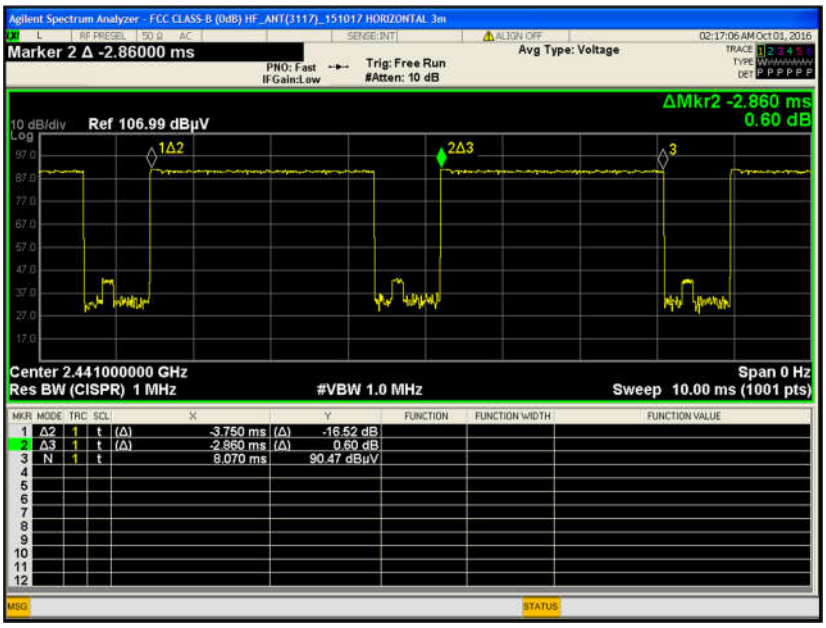


3.2.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

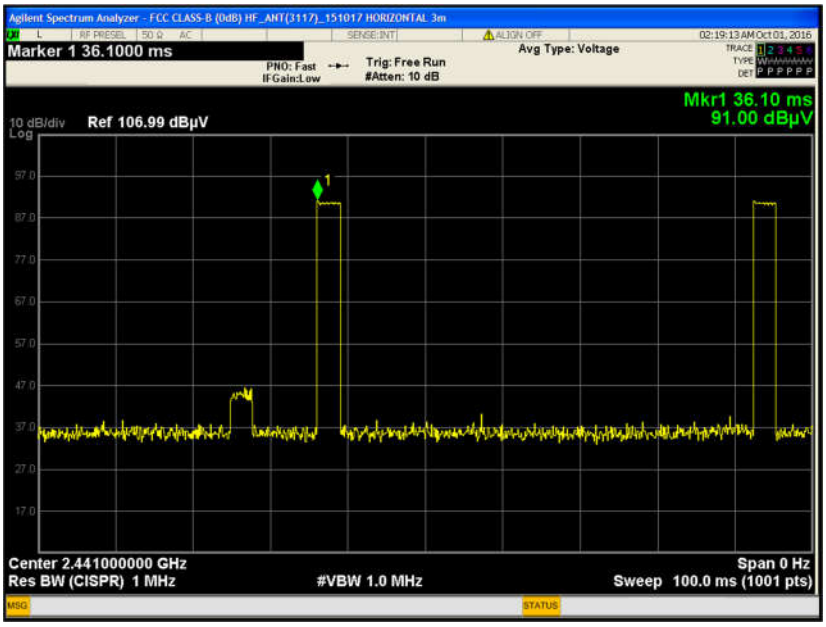
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.2.6 Duty cycle correction factor for average measurement

3DH5 on time (One Pulse) Plot on Channel 39



3DH5 on time (Count Pulses) Plot on Channel 39



Note:

1. Worst case Duty cycle = on time/100 milliseconds = 2 * 2.86 / 100 = 5.72 %
2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -24.85 dB
3. 3DH5 has the highest duty cycle worst case and is reported.

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the period to have DH5 packet completing one hopping sequence is

2.86 ms x 20 channels = 57.2 ms

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100ms / 57.6ms] = 2 hops

Thus, the maximum possible ON time:

2.86 ms x 2 = 5.72 ms

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.72 ms/100ms) = -24.85 dB

3.2.7 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A.

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

Please refer to Appendix A.

3.3 AC Conducted Emission Measurement

3.3.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

For terminal test result, the testing follows FCC KDB 174176.

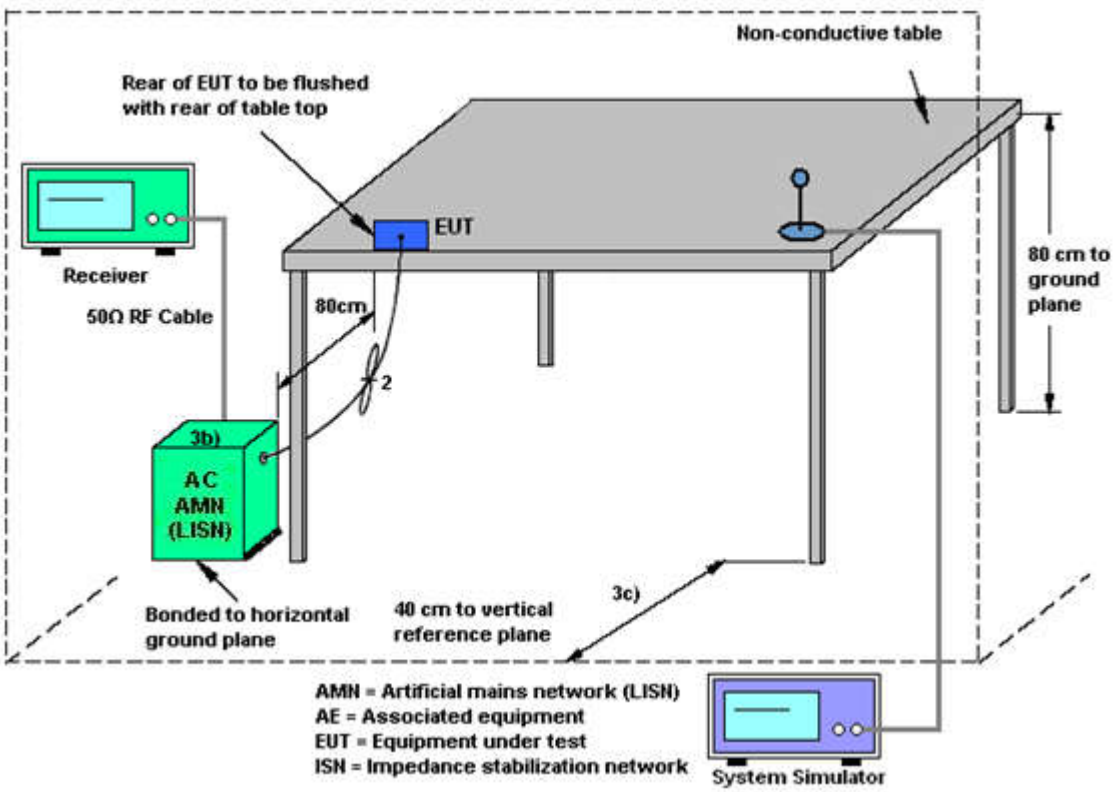
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

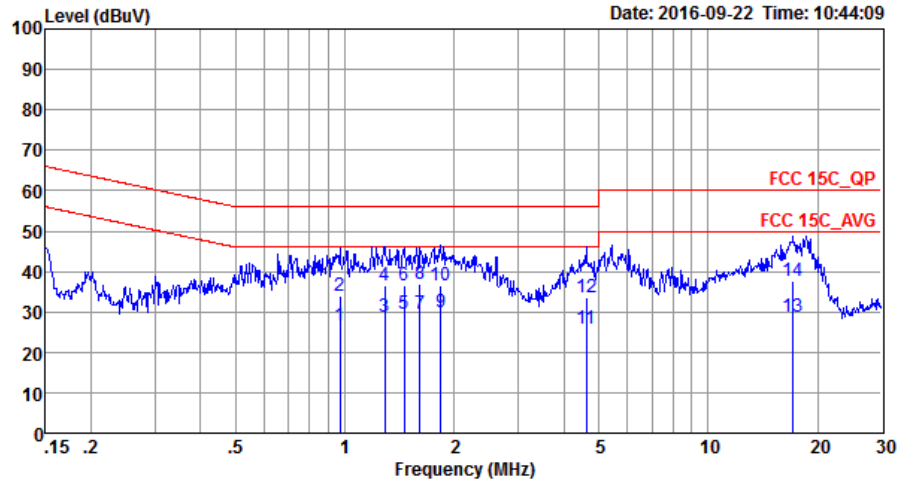
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.3.4 Test Setup



3.3.5 Test Result of AC Conducted Emission

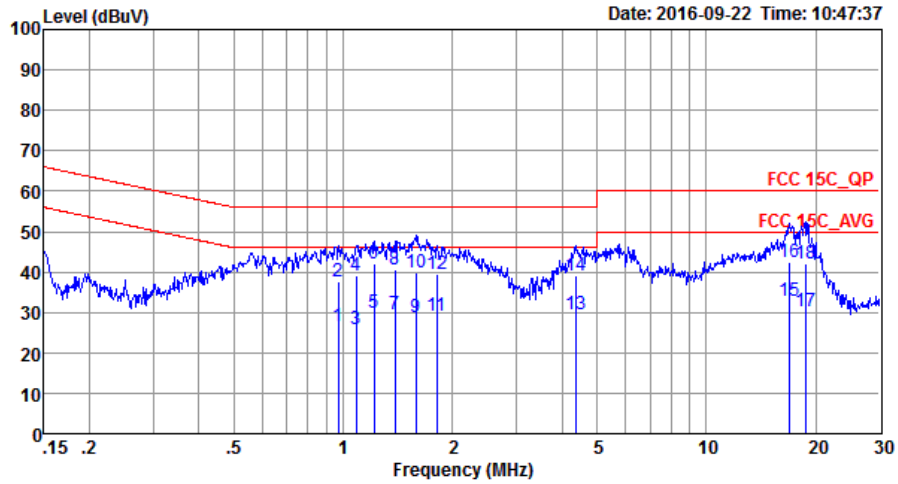
Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + USB Cable 3(Charging from Adapter 2) for Sample 1		




```
Site      : CO01-SZ
Condition: FCC 15C_QP LISN_20160509 LINE
Project   : (FR)312203-05
Mode      : Mode 1
```

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.97	26.57	-19.43	46.00	16.30	0.11	10.16	Average
2		0.97	33.97	-22.03	56.00	23.70	0.11	10.16	QP
3		1.29	28.77	-17.23	46.00	18.50	0.11	10.16	Average
4		1.29	36.37	-19.63	56.00	26.10	0.11	10.16	QP
5		1.46	29.58	-16.42	46.00	19.30	0.11	10.17	Average
6		1.46	36.68	-19.32	56.00	26.40	0.11	10.17	QP
7		1.61	29.38	-16.62	46.00	19.10	0.11	10.17	Average
8		1.61	37.08	-18.92	56.00	26.80	0.11	10.17	QP
9	*	1.84	29.98	-16.02	46.00	19.70	0.11	10.17	Average
10		1.84	36.68	-19.32	56.00	26.40	0.11	10.17	QP
11		4.62	25.88	-20.12	46.00	15.50	0.14	10.24	Average
12		4.62	33.48	-22.52	56.00	23.10	0.14	10.24	QP
13		17.11	28.95	-21.05	50.00	18.09	0.34	10.52	Average
14		17.11	37.55	-22.45	60.00	26.69	0.34	10.52	QP

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + Earphone + USB Cable 3(Charging from Adapter 2) for Sample 1		



Site : CO01-SZ
Condition: FCC 15C_QP LISN_20160509 NEUTRAL
Project : (FR)312203-05
Mode : Mode 1

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.97	26.67	-19.33	46.00	16.40	0.11	10.16	Average
2		0.97	37.47	-18.53	56.00	27.20	0.11	10.16	QP
3		1.09	25.77	-20.23	46.00	15.50	0.11	10.16	Average
4		1.09	39.07	-16.93	56.00	28.80	0.11	10.16	QP
5		1.22	29.77	-16.23	46.00	19.50	0.11	10.16	Average
6	*	1.22	41.97	-14.03	56.00	31.70	0.11	10.16	QP
7		1.39	29.47	-16.53	46.00	19.20	0.11	10.16	Average
8		1.39	40.67	-15.33	56.00	30.40	0.11	10.16	QP
9		1.59	28.68	-17.32	46.00	18.40	0.11	10.17	Average
10		1.59	39.88	-16.12	56.00	29.60	0.11	10.17	QP
11		1.81	28.98	-17.02	46.00	18.70	0.11	10.17	Average
12		1.81	39.58	-16.42	56.00	29.30	0.11	10.17	QP
13		4.38	29.37	-16.63	46.00	19.00	0.14	10.23	Average
14		4.38	38.97	-17.03	56.00	28.60	0.14	10.23	QP
15		16.93	32.84	-17.16	50.00	22.00	0.33	10.51	Average
16		16.93	42.44	-17.56	60.00	31.60	0.33	10.51	QP
17		18.72	30.36	-19.64	50.00	19.40	0.37	10.59	Average
18		18.72	41.96	-18.04	60.00	31.00	0.37	10.59	QP

3.4 Antenna Requirements

3.4.1 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.

3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.4.3 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	FSV40	101041	10kHz~40GHz; Max 30dBm	Oct. 20, 2015	Oct. 01, 2016	Oct. 19, 2016	Radiation (03CH02-SZ)
EMI Test Receiver	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	May 07, 2016	Oct. 01, 2016	May 06, 2017	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	May 07, 2016	Oct. 01, 2016	May 06, 2017	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	May 21, 2016	Oct. 01, 2016	May 20, 2017	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1285	1GHz~18GHz	Jan. 11, 2016	Oct. 01, 2016	Jan. 10, 2017	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 10, 2016	Oct. 01, 2016	Aug. 09, 2017	Radiation (03CH02-SZ)
Amplifier	HP	8447F	3113A04622	9kHz~1300MHz / 30 dB	Jul. 16, 2016	Oct. 01, 2016	Jul. 15, 2017	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 20, 2015	Oct. 01, 2016	Oct. 19, 2016	Radiation (03CH02-SZ)
Amplifier	Agilent	8449B	3008A01023	1GHz~26.5GHz	Oct. 20, 2015	Oct. 01, 2016	Oct. 19, 2016	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 16, 2016	Oct. 01, 2016	Jul. 15, 2017	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010002470	N/A	NCR	Oct. 01, 2016	NCR	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Oct. 01, 2016	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Oct. 01, 2016	NCR	Radiation (03CH02-SZ)
EMI Receiver	R&S	ESCI7	100724	9kHz~3GHz;	Nov. 23, 2015	Sep. 22, 2016	Nov. 22, 2016	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103892	9kHz~30MHz	Jan. 12, 2016	Sep. 22, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103912	9kHz~30MHz	Jan. 12, 2016	Sep. 22, 2016	Jan. 11, 2017	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	Sep. 22, 2016	Jul. 15, 2017	Conduction (CO01-SZ)
Pulse Limiter	COM-POWER	LIT-153 Transient Limiter	53139	150kHz~30MHz	Oct. 20, 2015	Sep. 22, 2016	Oct. 19, 2016	Conduction (CO01-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.5dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB

Uncertainty of Radiated Emission Measurement (18GHz~40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1dB

Appendix A. Radiated Spurious Emission

15C 2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 78 2480MHz	*	2480	98.18	-	-	91.96	32.68	6.66	33.12	153	130	P	H
	*	2480	73.33	-	-	-	-	-	-	153	130	A	H
		2485.09	48.77	-25.23	74	42.55	32.68	6.66	33.12	153	130	P	H
		2485.09	23.92	-30.08	54	-	-	-	-	153	130	A	H
	*	2480	87.82	-	-	81.6	32.68	6.66	33.12	153	59	P	V
	*	2480	62.97	-	-	-	-	-	-	153	59	A	V
		2485.44	47.76	-26.24	74	41.54	32.68	6.66	33.12	153	59	P	V
		2485.44	22.91	-31.09	54	-	-	-	-	153	59	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BT CH 78 2480MHz		4960	45.57	-28.43	74	57.7	34.48	9.64	56.25	250	0	P	H
		4960	20.72	-33.28	54	-	-	-	-	250	0	A	H
		7440	47.97	-26.03	74	57.78	36.28	11.69	57.78	150	0	P	H
		7440	23.12	-30.88	54	-	-	-	-	150	0	A	H
		4960	46.85	-27.15	74	58.98	34.48	9.64	56.25	250	0	P	V
		4960	22	-32	54	-	-	-	-	250	0	A	V
		7440	46.86	-27.14	74	56.67	36.28	11.69	57.78	150	0	P	V
		7440	22.01	-31.99	54	-	-	-	-	150	0	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C Emission below 1GHz

2.4GHz BT (LF)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz BT LF		30.97	26.69	-13.31	40	30.95	26.22	1.22	31.7	100	180	P	H
		120.21	19.4	-24.1	43.5	30.83	18.2	1.89	31.52	-	-	P	H
		262.8	19.4	-26.6	46	31.17	17.01	2.37	31.15	-	-	P	H
		406.36	25.56	-20.44	46	30.79	23.29	2.78	31.3	-	-	P	H
		713.85	30.26	-15.74	46	31.58	26.64	3.54	31.5	-	-	P	H
		867.11	31.39	-14.61	46	30.75	28.2	3.94	31.5	-	-	P	H
		37.76	32.04	-7.96	40	39.52	22.9	1.22	31.6	150	100	P	V
		47.46	23	-17	40	36.27	16.8	1.38	31.45	-	-	P	V
		83.35	25.79	-14.21	40	39.89	15.88	1.62	31.6	-	-	P	V
		152.22	22.68	-20.82	43.5	34.57	17.51	1.99	31.39	-	-	P	V
		462.62	26.45	-19.55	46	30.81	24.02	2.95	31.33	-	-	P	V
		910.76	31.96	-14.04	46	31	28.51	3.95	31.5	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is "PASS".

Appendix C. Photographs of EUT

Please refer to Sporton report number EP312203-05 which is issued separately.

Appendix D. Product Equality Declaration

CK TELECOM LTD.

Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.
Tel: +86-755-26739100; Fax: +86-755-26739500

Date: November 3, 2016

Product Equality Declaration

We, CK TELECOM LTD., declare on our sole responsibility for the product of Doro PhoneEasy 626 HC 1031 as below:

1. Add two USB cable “HYD-CK-0851” and “HT-SJX-16042501”
2. Add adapter”A8-501000”
3. Change Speaker, USB connector, Speaker audio PA IC
4. Change the MIC to: SOM4013SL-G422-RC-HF
5. Change the SIM connector to: SM012-15112A6C
6. Change the CAMERA to: VFGC0982-A1
7. Change the LCD to: QFG12832-111-PFDNN-R/ SBT240-040
8. Change SW from SHUTTLE-S13A_DORO626_L3EN_111_140224 to SHUTTLE-S13A_DORO626_L3EN_307_160913

Except listings above, the others are all the same as previous version.
Should you have any questions or comments regarding this matter, please have my best attention.
Sincerely yours,

Contact Person: Xin Li
Applicant: CK TELECOM LTD.
Tel: +86-755-26739100
Fax: +86-755-26739500
E-Mail: xin.li@ck-telecom.com