



Spot Check Evaluation

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

Page Number : 1 of 27

Report Issued Date : Mar. 21, 2017

Report Version : Rev. 03



TABLE OF CONTENTS

REVISION HISTORY.....	3
1. INTRODUCTION SECTION.....	4
2. DIFFERENCE SECTION	5
3. SPOT CHECK VERIFICATION DATA SECTION	6
4. REFERENCE DETAIL SECTION	8
APPENDIX A. SPOT CHECK TEST RESULT	
APPENDIX B. MEASURING INSTRUMENTS	



REVISION HISTORY

VERSION	DESCRIPTION	ISSUED DATE
Rev. 01	Initial issue of report	Mar. 01, 2017
Rev. 02	Adding the test information in section 3 and appendix.	Mar. 16, 2017
Rev. 03	Adding the peak output power comparison and revised the test method of output power measurement in appendix A.1.	Mar. 21, 2017



1. Introduction Section

The original model (FCC ID: ZNFX240H) and the variant model (FCC ID: ZNFX240YK) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/GPS. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS) test data issued for original model also apply for the variant model.

The applicant takes full responsibility that the test data as referenced in section 4 below represent compliance for this FCC ID (FCC ID: ZNFX240YK).



2. Difference Section

The original model (FCC ID: ZNFX240H) and the variant model (FCC ID: ZNFX240YK) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/GPS. The details of similarity and difference can be found in the Produce Equality Description.

The product specification is outlined in the following table:

FCC ID		ZNFX240H	ZNFX240YK
Wireless Tech	Mode	Frequency (MHz)	
GSM	GSM Voice GPRS (GMSK) EDGE (8PSK)	Multi-Slot Class 12 DTM: No	850/1900 850/1900
UMTS	AMR/RCM12.2Kbps HSDPA/HSUPA/DC-HSDPA	B5/B4/B2	B5
LTE (FDD)	QPSK 16QAM	B13/B17/B5/B4/B2/B7	B5/B7
Wi-Fi	11b/11g/11n(HT20)/11n(HT40)	2412-2462 MHz	
Bluetooth	BR/EDR/LE	2402-2480 MHz	



3. Spot Check Verification Data Section

Summary of the spot check:

Test Item	Mode	ZNFX240H Worst Result	ZNFX240YK Worst Result	Difference (dB)
Average Conducted Power (dBm)	802.11b	16.97	16.85	0.12
	802.11g	14.63	14.42	0.21
	11n HT20	11.43	11.25	0.18
	11n HT40	10.99	10.86	0.13
	BT (1Mbps)	7.06	6.70	0.36
	BT (2Mbps)	4.71	4.28	0.43
	BT (3Mbps)	4.67	4.27	0.40
	BT-LE	-0.93	-1.37	0.44
	Test date	Nov. 03, 2016~ Feb. 24, 2017	Dec. 27, 2016~ Feb. 24, 2017	
Peak Conducted Power (dBm)	802.11b	19.85	19.84	0.01
	802.11g	22.58	22.25	0.33
	11n HT20	20.97	20.8	0.17
	11n HT40	21.52	21.46	0.06
	BT (1Mbps)	7.25	6.9	0.35
	BT (2Mbps)	6.49	6.05	0.44
	BT (3Mbps)	6.73	6.37	0.36
	BT-LE	-0.37	-0.65	0.28
	Test date	Nov. 03, 2016~ Feb. 24, 2017	Dec. 27, 2016~ Feb. 24, 2017	
Peak Radiated Spurious Emission (Band Edge) (dBuV/m)	11n HT40	59.53	59.49	0.04
	BT (1Mbps)	44.26	45.04	-0.78
	BT-LE	54.28	53.71	0.57
	Test date	Nov. 12, 2016~ Feb. 24, 2017	Feb. 21, 2017~ Feb. 24, 2017	
Average Radiated Spurious Emission (Band Edge) (dBuV/m)	11n HT40	46.76	46.86	-0.1
	BT (1Mbps)	19.44	20.22	-0.78
	BT-LE	44.71	45.01	-0.3
	Test date	Nov. 12, 2016~ Feb. 24, 2017	Feb. 21, 2017~ Feb. 24, 2017	
Peak Radiated Spurious Emission (Harmonic) (dBuV/m)	11n HT40	37.88	39.70	-1.82
	BT (1Mbps)	38.86	39.50	-0.64
	BT-LE	37.65	39.22	-1.57
	Test date	Nov. 12, 2016~ Feb. 24, 2017	Feb. 21, 2017~ Feb. 24, 2017	



Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result (power levels measured are within 0.5dB, and the worst case of RSE spot check verification based on the worst condition from the original model is within 3dB, and are compliance with the limits), the test data from the original model is representative for the variant model.

The unwanted, harmonics, radiated spurious emission is reported peak measurement only due to spurious lower than 20dB than the limit.

The detail test results can be found in this document, Appendix A, hereafter.



4. Reference detail Section

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Title
DTS	ZNFX240H	Original Grant	FR6O1802B FR6O1802C	Part 15C	All sections applicable
			FA6O1802	RF Exposure	All sections applicable
DSS	ZNFX240H	Original Grant	FR6O1802A	Part 15C	All sections applicable
			FA6O1802	RF Exposure	All sections applicable



Appendix A. Spot Check Test Result

A.1 Conducted power

A.1.1 Test Procedures

DSS

1. The testing follows ANSI C63.10-2013 clause 7.8.5.
2. 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.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

DTS

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r05 section 9.1.2 PKPM1 Peak power meter method.
2. 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.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.



A.1.2 Test results

<Bluetooth>

Mode	Channel	Frequency (MHz)	FCC ID ZNFX240H Peak power (dBm)	FCC ID ZNFX240YK Peak power (dBm)
Bluetooth (1Mbps)	CH 00	2402	6.25	5.84
	CH 39	2441	7.25	6.90
	CH 78	2480	6.08	5.69
Bluetooth (2Mbps)	CH 00	2402	5.55	5.09
	CH 39	2441	6.49	6.05
	CH 78	2480	5.29	4.97
Bluetooth (3Mbps)	CH 00	2402	5.70	5.24
	CH 39	2441	6.73	6.37
	CH 78	2480	5.47	5.17
BLE (GFSK)	CH 00	2402	-1.07	-1.41
	CH 19	2440	-0.37	-0.65
	CH 39	2480	-1.53	-1.48

<Bluetooth>

Mode	Channel	Frequency (MHz)	Tune-Up Limit	FCC ID ZNFX240H Average power (dBm)	FCC ID ZNFX240YK Average power (dBm)
Bluetooth (1Mbps)	CH 00	2402	8.0	6.00	5.59
	CH 39	2441		7.06	6.70
	CH 78	2480		5.87	5.46
Bluetooth (2Mbps)	CH 00	2402	5.0	3.63	3.16
	CH 39	2441		4.71	4.28
	CH 78	2480		3.44	3.22
Bluetooth (3Mbps)	CH 00	2402	5.0	3.62	3.21
	CH 39	2441		4.67	4.27
	CH 78	2480		3.45	3.19
BLE (GFSK)	CH 00	2402	0.0	-1.70	-2.12
	CH 19	2440		-0.93	-1.37
	CH 39	2480		-2.17	-2.52



<2.4GHz WLAN>

2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Data Rate	FCC ID ZNFX240H Peak power (dBm)	FCC ID ZNFX240YK Peak power (dBm)
	802.11b		CH 1	2412	1Mbps	18.77
CH 6			2437	19.85		19.84
CH 11			2462	18.99		18.71
802.11g		CH 1	2412	6Mbps	21.17	20.86
		CH 6	2437		22.58	22.25
		CH 11	2462		22.02	21.84
802.11n-HT20		CH 1	2412	MCS0	20.45	20.45
		CH 6	2437		20.95	20.73
		CH 11	2462		20.97	20.80
802.11n-HT40		CH 3	2422	MCS0	20.45	20.16
		CH 6	2437		21.36	21.25
		CH 9	2452		21.52	21.46

<2.4GHz WLAN>

2.4GHz WLAN	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit	FCC ID ZNFX240H Average power (dBm)	FCC ID ZNFX240YK Average power (dBm)
	802.11b		CH 1	2412	1Mbps	16.0	15.93
CH 6			2437	17.0		16.97	16.85
CH 11			2462	16.0		15.99	15.70
802.11g		CH 1	2412	6Mbps	12.0	11.94	11.66
		CH 6	2437		15.0	14.63	14.42
		CH 11	2462		13.5	13.26	13.18
802.11n-HT20		CH 1	2412	MCS0	11.5	11.13	10.83
		CH 6	2437			11.35	11.06
		CH 11	2462			11.43	11.25
802.11n-HT40		CH 3	2422	MCS0	9.5	9.14	9.03
		CH 6	2437		11.0	10.94	10.53
		CH 9	2452			10.99	10.86



A.2 Radiated Spurious Emission

A.2.1 Test Procedures

DSS

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 $f > 1$ GHz ; VBW \geq 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 = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$
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 (-24.82dB) derived from $20 \log(\text{dwell time}/100\text{ms})$. 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.



DTS

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. 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.
3. 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.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
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; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.



A.2.2 Test results

2.4GHz BT/WLAN

Mode	Ch	Freq. (MHz)	Peak /Avg.	FCC ID ZNFX240H						FCC ID ZNFX240YK					
				Band edge			Harmonic			Band edge			Harmonic		
				Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)
BT(1Mbps)	CH 78	2480	P	2484.64	44.26	74	7440	38.86	74	2483.96	45.04	74	7440	39.5	74
			A	2484.64	19.44	54				2483.96	20.22	54			
BLE	CH 39	2480	P	2491.2	54.28	74	7440	37.65	74	2499.8	53.71	74	7440	39.22	74
			A	2488.68	44.71	54				2484.2	45.01	54			
802.11n-HT40	CH 03	2422	P	2389.94	59.53	74	7266	37.88	74	2389.38	59.49	74	7266	39.7	74
			A	2389.38	46.76	54				2389.8	46.86	54			



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical
-L	Low channel location
-R	High channel location



2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBμV/m)	(dB)	Limit	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	102.55	-	-	99.7	27.45	8.98	33.58	200	323	P	H
	*	2480	77.73	-	-	-	-	-	-	-	-	A	H
		2483.96	45.04	-28.96	74	42.19	27.45	8.98	33.58	200	323	P	H
		2483.96	20.22	-33.78	54	-	-	-	-	-	-	A	H
	*	2480	97.49	-	-	94.64	27.45	8.98	33.58	277	26	P	V
	*	2480	72.67	-	-	-	-	-	-	-	-	A	V
		2490.64	44.66	-29.34	74	41.76	27.5	8.98	33.58	277	26	P	V
		2490.64	19.84	-34.16	54	-	-	-	-	-	-	A	V

BT (Harmonic @ 3m)

BT	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
		(MHz)	(dBμV/m)	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		4960	34.66	-39.34	74	56.23	31.94	11.12	64.63	100	0	P	H
		4960	9.84	-44.16	54	-	-	-	-	-	-	A	H
		7440	39.16	-34.84	74	53.72	37.44	12.88	64.88	100	0	P	H
		7440	14.34	-39.66	54	-	-	-	-	-	-	A	H
		4960	34.25	-39.75	74	55.82	31.94	11.12	64.63	100	0	P	V
		4960	9.43	-44.57	54	-	-	-	-	-	-	A	V
		7440	39.5	-34.5	74	54.06	37.44	12.88	64.88	100	0	P	V
		7440	14.68	-39.32	54	-	-	-	-	-	-	A	V

Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	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)
BLE CH 39 2480MHz	*	2480	94.07	-	-	91.22	27.45	8.98	33.58	268	323	P	H
	*	2480	93.4	-	-	90.55	27.45	8.98	33.58	268	323	A	H
		2491.68	54.17	-19.83	74	51.27	27.5	8.98	33.58	268	323	P	H
		2486.32	45	-9	54	42.15	27.45	8.98	33.58	268	323	A	H
	*	2480	89.5	-	-	86.65	27.45	8.98	33.58	307	42	P	V
	*	2480	88.98	-	-	86.13	27.45	8.98	33.58	307	42	A	V
		2499.8	53.71	-20.29	74	50.8	27.5	8.98	33.57	307	42	P	V
		2484.2	45.01	-8.99	54	42.16	27.45	8.98	33.58	307	42	A	V

BLE (Harmonic @ 3m)

BLE	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)
BLE CH 39 2480MHz		4960	35.67	-38.33	74	57.24	31.94	11.12	64.63	100	0	P	H
		7440	39.22	-34.78	74	53.78	37.44	12.88	64.88	100	0	P	H
		4960	34.72	-39.28	74	56.29	31.94	11.12	64.63	100	0	P	V
		7440	39.01	-34.99	74	53.57	37.44	12.88	64.88	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**2.4GHz 2400~2483.5MHz
WIFI 802.11n HT40 (Band Edge @ 3m)**

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		2389.38	59.49	-14.51	74	57.01	27.19	8.89	33.6	200	332	P	H
		2389.8	46.86	-7.14	54	44.37	27.19	8.89	33.59	200	332	A	H
	*	2422	102.06	-	-	99.42	27.29	8.94	33.59	200	332	P	H
	*	2422	93.78	-	-	91.14	27.29	8.94	33.59	200	332	A	H
		2494.68	53.54	-20.46	74	50.63	27.5	8.98	33.57	200	332	P	H
		2489.57	45.17	-8.83	54	42.27	27.5	8.98	33.58	200	332	A	H
		2389.66	58.52	-15.48	74	56.04	27.19	8.89	33.6	305	254	P	V
		2387.98	46.12	-7.88	54	43.64	27.19	8.89	33.6	305	254	A	V
	*	2422	99.51	-	-	96.87	27.29	8.94	33.59	305	254	P	V
	*	2422	91.52	-	-	88.88	27.29	8.94	33.59	305	254	A	V
		2494.47	53.83	-20.17	74	50.92	27.5	8.98	33.57	305	254	P	V
		2485.16	44.82	-9.18	54	41.97	27.45	8.98	33.58	305	254	A	V

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT40 CH 03 2422MHz		4844	34.96	-39.04	74	57.19	31.72	10.77	64.72	100	0	P	H
		7266	39.2	-34.8	74	54.04	37.23	12.74	64.81	100	0	P	H
		4844	33.66	-40.34	74	55.89	31.72	10.77	64.72	100	0	P	V
		7266	39.7	-34.3	74	54.54	37.23	12.74	64.81	100	0	P	V

Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												



Note symbol

-L	Low channel location
-R	High channel location



2.4GHz 2400~2483.5MHz

BT (Band Edge @ 3m)

BT	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BT CH78 2480MHz	
1	Horizontal	Vertical
Peak	<p>Site : 03CH1-IV Condition : PEAK_BE_74 3m HORN 91200-IF HORIZONTAL Detector : Peak Project : 6D1013</p>	<p>Site : 03CH1-IV Condition : PEAK_BE_74 3m HORN 91200-IF VERTICAL Detector : Peak Project : 6D1013</p>



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

BT	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BT CH78 2480MHZ	
1	Horizontal	Vertical
<p>Peak Avg.</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL Project : 601013</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL Project : 601013</p>



2.4GHz 2400~2483.5MHz
BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH39 2480MHz	
1	Horizontal	Vertical
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 6D1013</p>	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL Detector : Peak Project : 6D1013</p>
Avg.	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL Detector : Peak Project : 6D1013</p>	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL Detector : Peak Project : 6D1013</p>



2.4GHz 2400~2483.5MHz
BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH39 2480MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH11-HY Condition : PEAK_74 3m 9/170 SHF HORM_150809 HORIZONTAL Project : 601013</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m 9/170 SHF HORM_150809 VERTICAL Project : 601013</p>

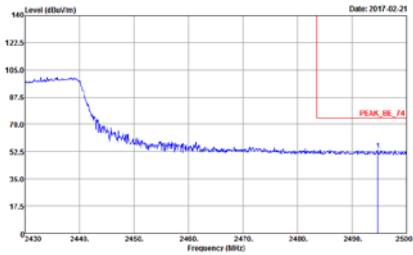
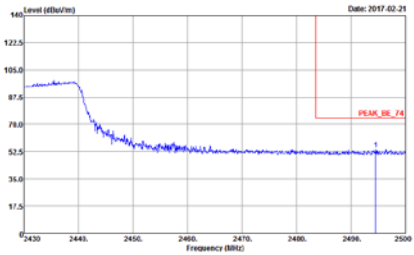
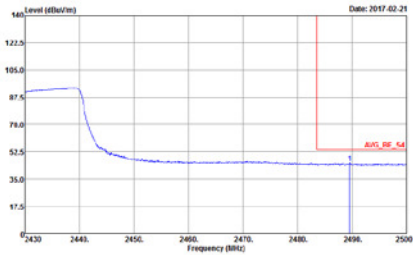
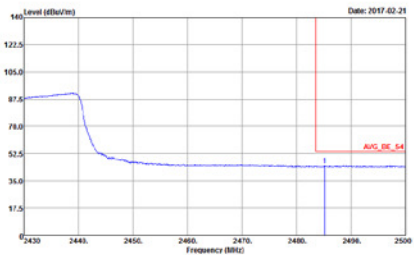


2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - L	
1	Horizontal	Vertical
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL RBW:3000.0000Hz VBW:3000.0000Hz SWT:Auto Detector : Peak Project : 6D1013</p>	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL RBW:3000.0000Hz VBW:3000.0000Hz SWT:Auto Detector : Peak Project : 6D1013</p>
Avg.	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL RBW:3000.0000Hz VBW:3.0000Hz SWT:Auto Detector : Peak Project : 6D1013</p>	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL RBW:3000.0000Hz VBW:3.0000Hz SWT:Auto Detector : Peak Project : 6D1013</p>



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT40 CH03 2422MHz - R	
1	Horizontal	Vertical
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6D1013</p>	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 6D1013</p>
Avg.	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 6D1013</p>	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL RBW:1000.000KHz VBW:3.000KHz SWT:Auto Detector : Peak Project : 6D1013</p>



**2.4GHz 2400~2483.5MHz
WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11n HT40 CH03 2422MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH11-4V Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL Project : 601013</p>	<p>Site : 03CH11-4V Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL Project : 601013</p>



Appendix B. Measuring Instruments

List of Measuring Equipment for DSS and DTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Agilent	ML2495A	0932001	300MHz~40GHz	Sep. 29, 2016	Dec. 27, 2016~ Feb. 24, 2017	Sep. 28, 2017	Conducted
Power Sensor	Agilent	MA2411B	0846202	300MHz~40GHz	Sep. 29, 2016	Dec. 27, 2016~ Feb. 24, 2017	Sep. 28, 2017	Conducted
Power Meter	Agilent	E4416A	GB412923 44	300MHz~40GHz	Dec. 26, 2016	Dec. 27, 2016~ Feb. 24, 2017	Dec. 25, 2017	Conducted
Power Sensor	Agilent	E9327A	US404415 48	300MHz~40GHz	Dec. 26, 2016	Dec. 27, 2016~ Feb. 24, 2017	Dec. 25, 2017	Conducted
BT Base Station(Measure)	Rohde & Schwarz	CBT	101136	BT 3.0	Sep. 21, 2016	Dec. 27, 2016~ Feb. 24, 2017	Sep. 20, 2017	Conducted
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Jul. 17, 2016	Dec. 27, 2016~ Feb. 24, 2017	Jul. 16, 2017	Conducted
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Feb. 21, 2017~ Feb. 24, 2017	Nov. 09, 2017	Radiation
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 2, 2015	Feb. 21, 2017~ Feb. 24, 2017	Sep. 1, 2017	Radiation
Bilog Antenna	TESEQ	CBL 6111D	35414	30MHz~1GHz	Oct. 15, 2016	Feb. 21, 2017~ Feb. 24, 2017	Oct. 14, 2017	Radiation
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-152 2	1GHz ~ 18GHz	Mar. 30, 2016	Feb. 21, 2017~ Feb. 24, 2017	Mar. 31, 2017	Radiation
Preamplifier	Keysight	83017A	MY532700 80	1GHz~26.5GHz	Nov. 10, 2016	Feb. 21, 2017~ Feb. 24, 2017	Nov. 09, 2017	Radiation
Spectrum Analyzer	Keysight	N9010A	MY523502 76	10Hz ~ 44GHz	Mar. 21, 2016	Feb. 21, 2017~ Feb. 24, 2017	Mar. 20, 2017	Radiation
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 21, 2017~ Feb. 24, 2017	N/A	Radiation
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Feb. 21, 2017~ Feb. 24, 2017	N/A	Radiation
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Feb. 21, 2017~ Feb. 24, 2017	N/A	Radiation
Preamplifier	MITEQ	AMF-7D-0010 1800	2025787	1GHz~18GHz	Feb. 13, 2017	Feb. 21, 2017~ Feb. 24, 2017	Feb. 12, 2018	Radiation
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 584	18GHz- 40GHz	Nov. 08, 2016	Feb. 21, 2017~ Feb. 24, 2017	Nov. 07, 2017	Radiation

End of this report