FCC RF Test Report

APPLICANT	:	Ericsson AB
EQUIPMENT	:	Mobile Broadband Module
BRAND NAME	:	Ericsson AB
MODEL NAME	:	F5321
FCC ID	:	VV7-MBMF5321
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
Tx/Rx FREQUENCY RANGE	:	GSM850 : 824.2 ~ 848.8 MHz / 869.2 ~ 893.8 MHz GSM1900 : 1850.2 ~ 1909.8 MHz / 1930.2 ~ 1989.8 MHz WCDMA Band V : 826.4 ~ 846.6 MHz / 871.4 ~ 891.6 MHz WCDMA Band II : 1852.4 ~ 1907.6 MHz / 1932.4 ~ 1987.6 MHz

The product was installed into Notebook PC (Brand Name: hp, Model Name: HSTNN-W90C) during test.

The product was received on Mar. 06, 2012 and completely tested on Mar. 12, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown 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 INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG230618	Rev. 01	Initial issue of report	Mar. 22, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 21.52 dB at 1672.000 MHz

1 General Description

1.1 Applicant

Ericsson AB
Lindholmspiren 11 SE-417 56 Gothenburg, Sweden

1.2 Manufacturer

Ericsson AB
Lindholmspiren 11 SE-417 56 Gothenburg, Sweden

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Mobile Broadband Module
Brand Name	Ericsson AB
Model Name	F5321
Host Notebook PC	Brand Name: hp Model Name: HSTNN-W90C
Sample 1	EUT with Antenna 1
Sample 2	EUT with Antenna 2
FCC ID	VV7-MBMF5321
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 33.48 dBm GSM1900 : 30.14 dBm WCDMA Band V : 23.84 dBm WCDMA Band II : 23.10 dBm
Antenna Type	PIFA Antenna
Type of Modulation	GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)

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 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	**FCC/IC Registration No.**
	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- FCC 47 CFR Part 2, 22(H), 24(E)
- ANSI / TIA / EIA-603-C-2004
- IC RSS-132 Issue 2
- IC RSS-133 Issue 5

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.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

Test Modes	
Band	**Radiated TCs**
GSM 850	■ GPRS 8 Link for Sample 1 ■ EDGE 8 Link for Sample 1 ■ GPRS 8 Link for Sample 2
GSM 1900	■ GPRS 8 Link for Sample 1 ■ EDGE 8 Link for Sample 1 ■ GPRS 8 Link for Sample 2
WCDMA Band V	■ RMC 12.2Kbps Link for Sample 1
WCDMA Band II	■ RMC 12.2Kbps Link for Sample 1

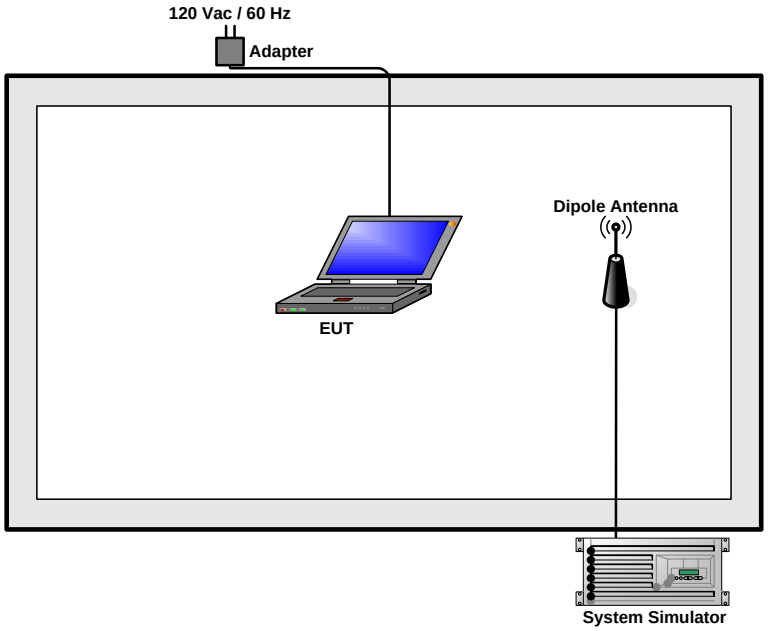
'Note: The maximum power levels are GPRS multi-slot class 8 mode for GMSK link, EDGE multi-slot class 8 mode for 8PSK link, RMC 12.2Kbps mode for WCDMA band V, RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.

The conducted power tables are as follows:

Conducted Power (*Unit: dBm)						
Band	**GSM850**			**GSM1900**		
Channel	**128**	**189**	**251**	**512**	**661**	**810**
Frequency	**824.2**	**836.4**	**848.8**	**1850.2**	**1880.0**	**1909.8**
GPRS 8	**33.48**	33.40	33.29	29.87	**30.14**	30.09
GPRS 10	33.35	33.26	33.19	29.82	30.09	30.05
EGPRS 8	**27.74**	27.64	27.53	26.64	26.94	**27.00**
EGPRS 10	27.71	27.61	27.51	26.61	26.91	26.98

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880.0	1907.6
RMC 12.2K	23.66	23.67	**23.84**	22.93	**23.10**	23.00
HSDPA Subtest-1	23.65	23.66	23.81	22.01	22.15	22.06
HSDPA Subtest-2	23.64	23.63	23.78	21.92	22.14	22.03
HSDPA Subtest-3	23.20	23.21	23.31	21.48	21.66	21.54
HSDPA Subtest-4	23.15	23.14	23.27	21.40	21.61	21.52
HSUPA Subtest-1	23.68	23.72	23.83	22.22	22.27	22.18
HSUPA Subtest-2	21.58	21.70	21.84	20.05	20.28	20.16
HSUPA Subtest-3	22.63	22.66	22.86	21.24	21.40	21.12
HSUPA Subtest-4	21.71	21.75	21.92	20.13	20.36	20.23
HSUPA Subtest-5	23.20	23.21	23.39	21.88	21.90	21.82

2.2 Connection Diagram of Test System



3 Test Result

3.1 Field Strength of Spurious Radiation Measurement

3.1.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.1.2 Measuring Instruments

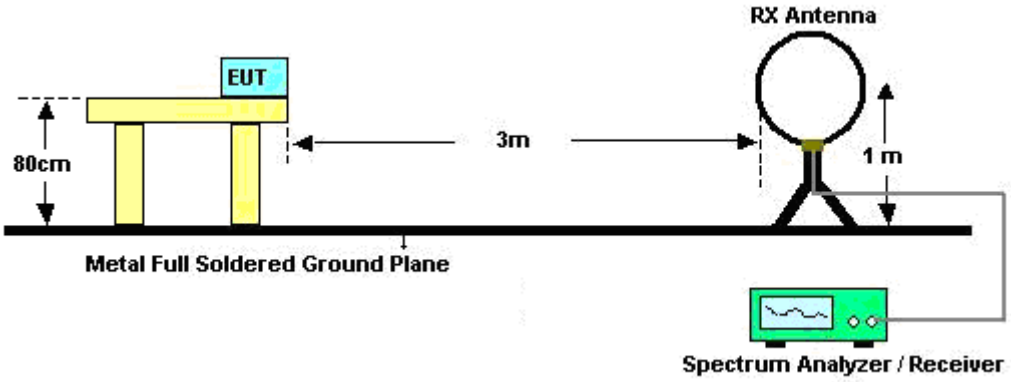
See list of measuring instruments of this test report.

3.1.3 Test Procedures

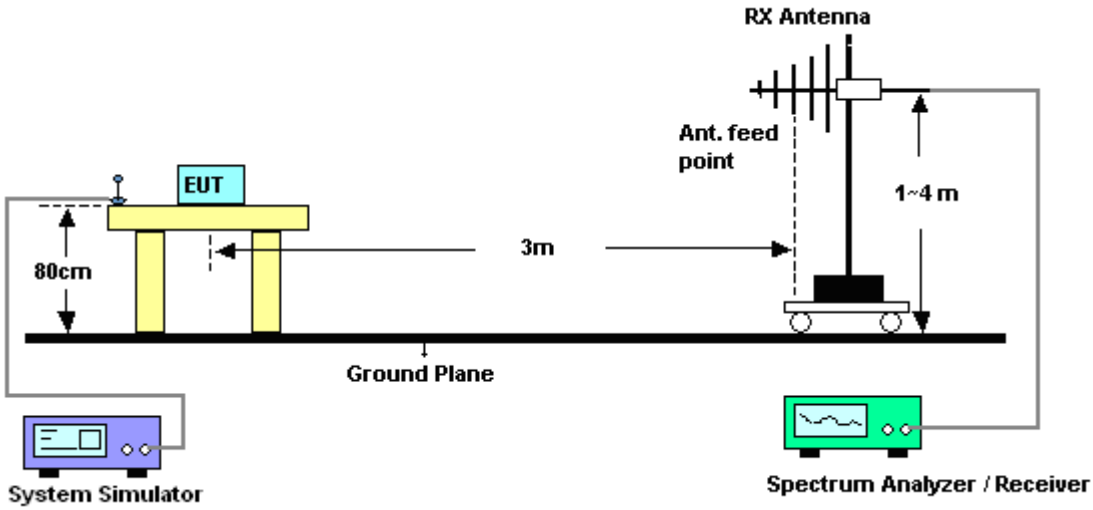
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15

3.1.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz

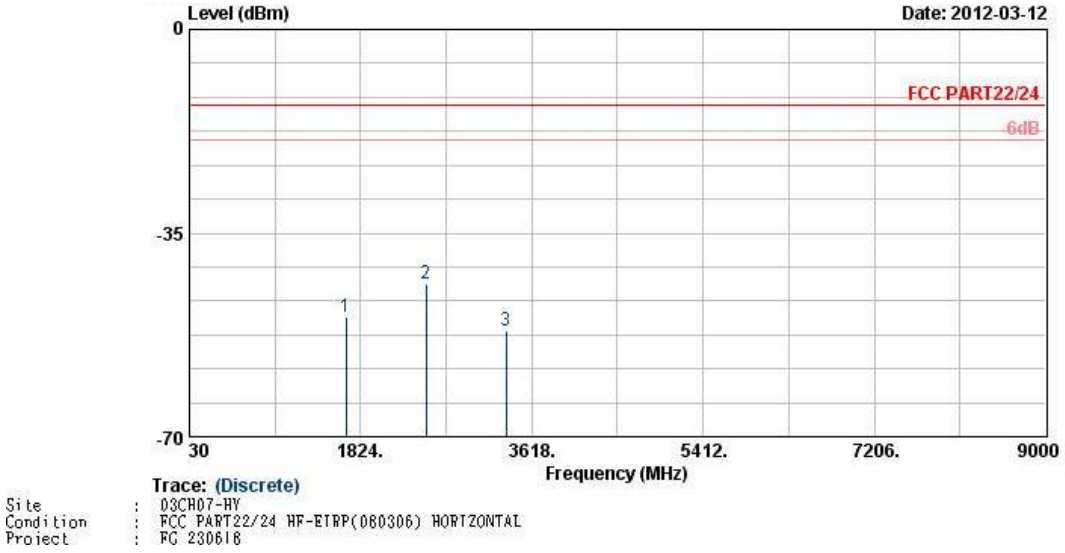


3.1.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

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.

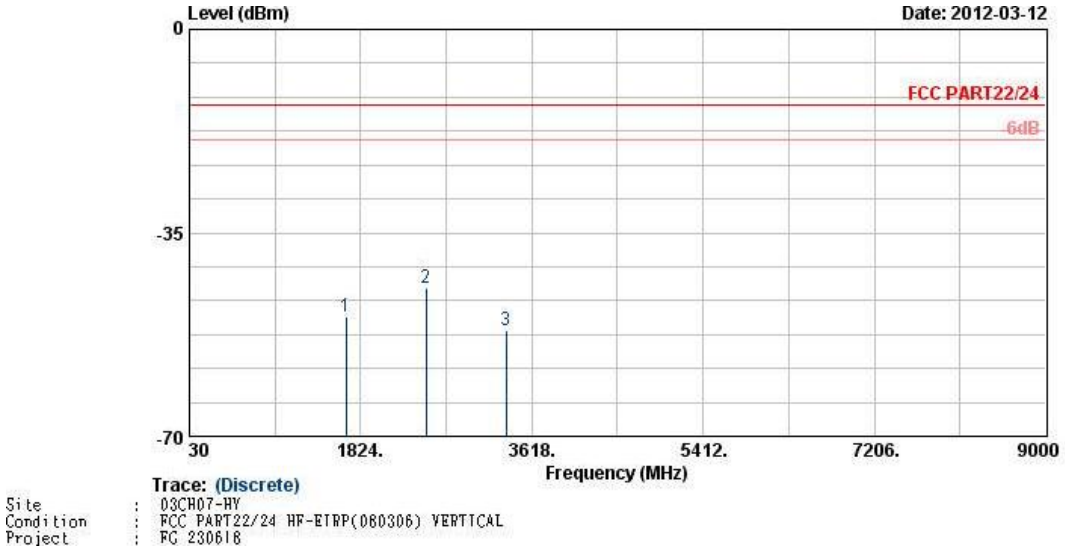
3.1.6 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



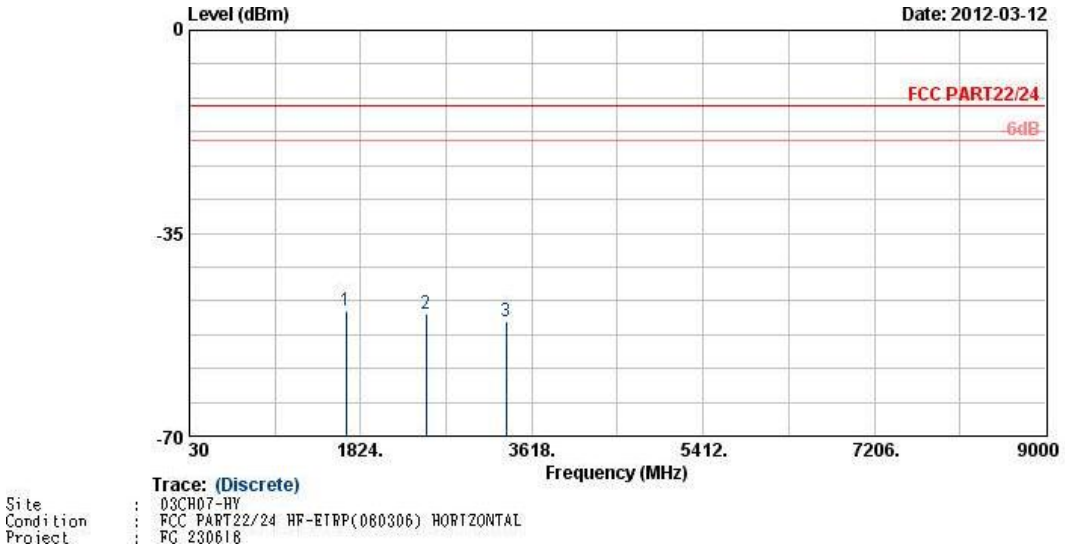
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-49.48	-13	-36.48	-59.78	-51.2	1.62	5.49	H	Pass
2509	-43.81	-13	-30.81	-57.18	-45.78	2.1	6.22	H	Pass
3345	-51.79	-13	-38.79	-66.7	-54.68	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



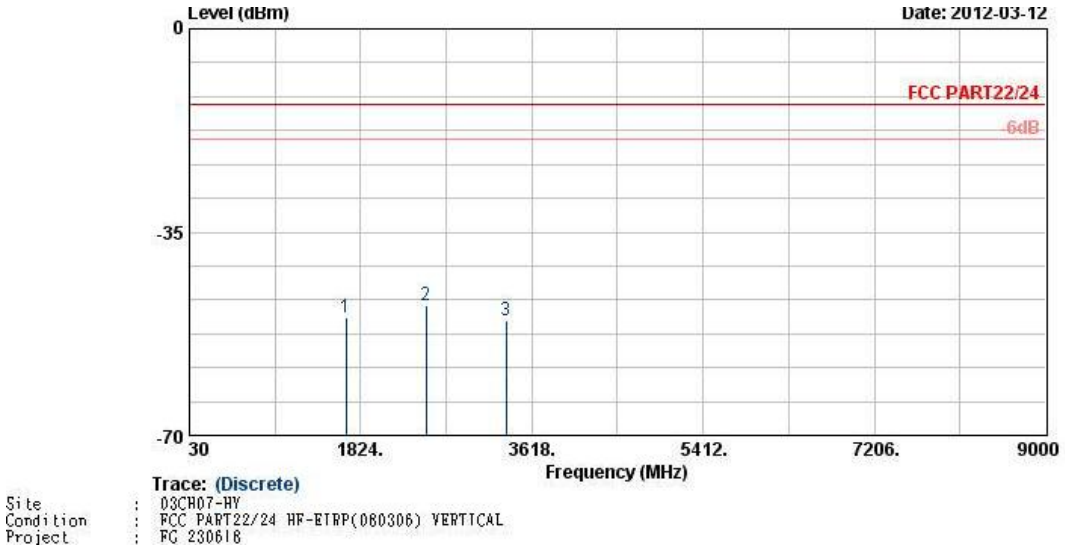
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-49.52	-13	-36.52	-61.09	-51.24	1.62	5.49	V	Pass
2509	-44.60	-13	-31.60	-58.42	-46.57	2.1	6.22	V	Pass
3345	-51.79	-13	-38.79	-66.64	-54.68	3.03	8.07	V	Pass

Band :	GSM850	Temperature :	21~22°C
Test Mode :	EDGE 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



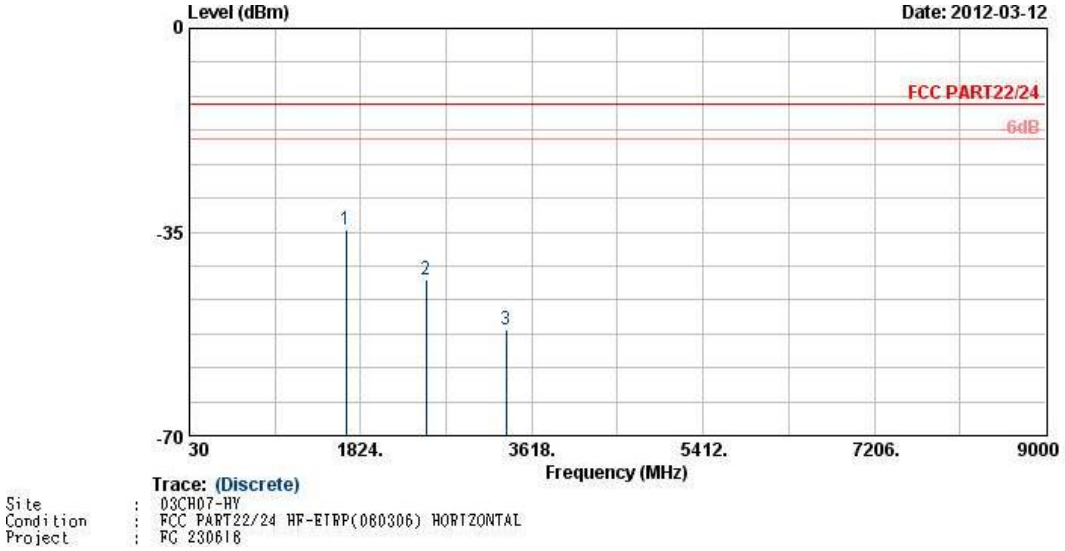
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-48.52	-13	-35.52	-57.49	-50.24	1.62	5.49	H	Pass
2509	-48.90	-13	-35.90	-61.43	-50.87	2.1	6.22	H	Pass
3345	-50.19	-13	-37.19	-65.62	-53.08	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	21~22°C
Test Mode :	EDGE 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



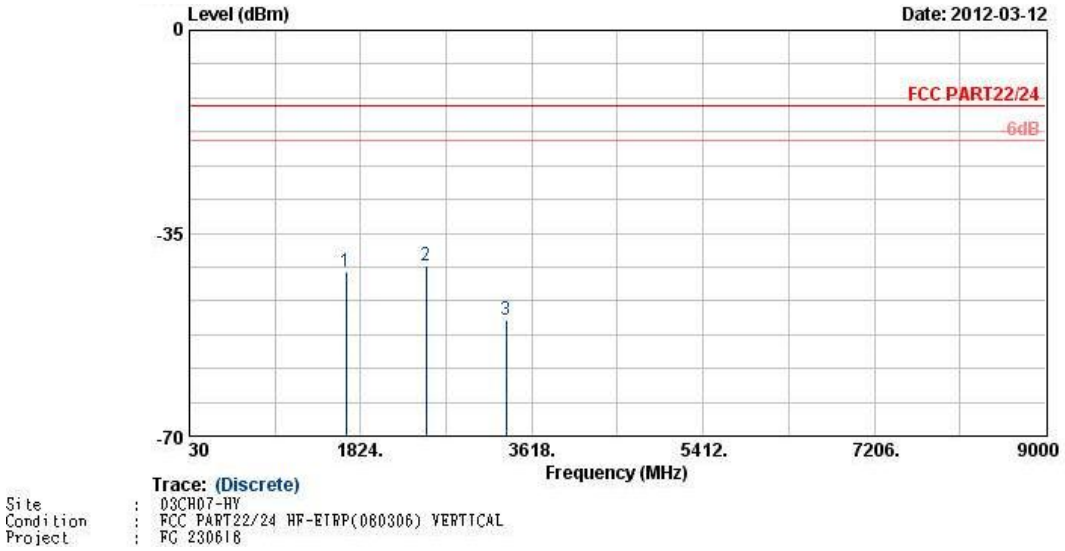
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-49.75	-13	-36.75	-60.99	-51.47	1.62	5.49	V	Pass
2509	-47.71	-13	-34.71	-60.86	-49.68	2.1	6.22	V	Pass
3345	-50.14	-13	-37.14	-66.55	-53.03	3.03	8.07	V	Pass

Band :	GSM850	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 2	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



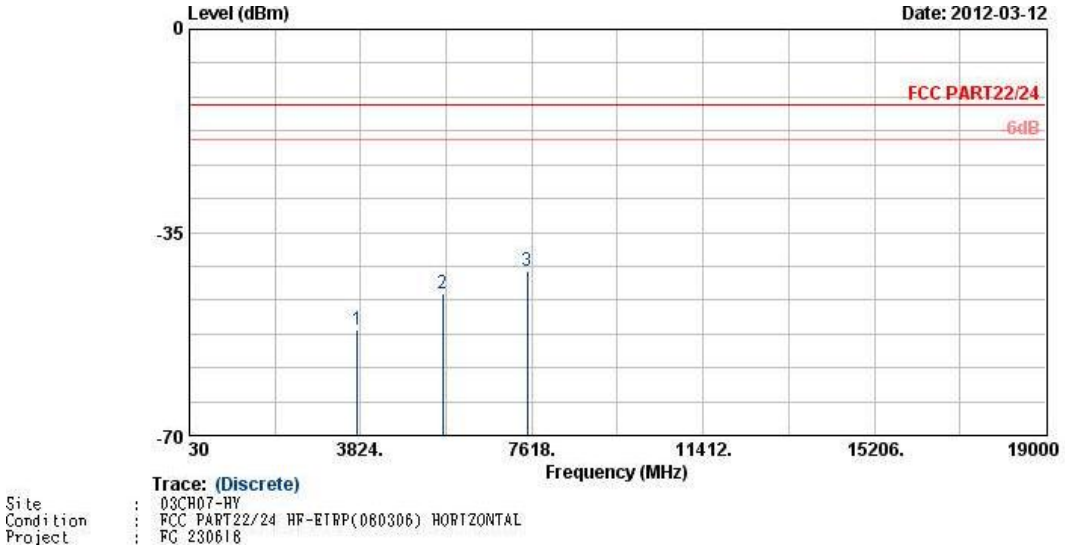
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-34.52	-13	-21.52	-44.46	-36.24	1.62	5.49	H	Pass
2509	-43.13	-13	-30.13	-58.13	-45.1	2.1	6.22	H	Pass
3345	-51.68	-13	-38.68	-66.87	-54.57	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 2	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



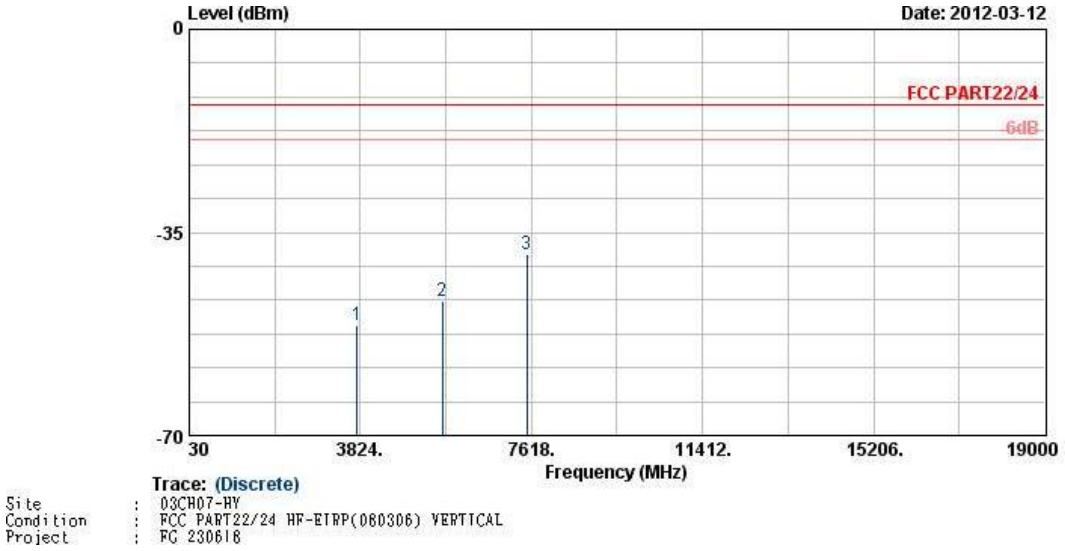
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-41.72	-13	-28.72	-52.41	-43.44	1.62	5.49	V	Pass
2509	-40.50	-13	-27.50	-54.4	-42.47	2.1	6.22	V	Pass
3345	-50.09	-13	-37.09	-66.69	-52.98	3.03	8.07	V	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



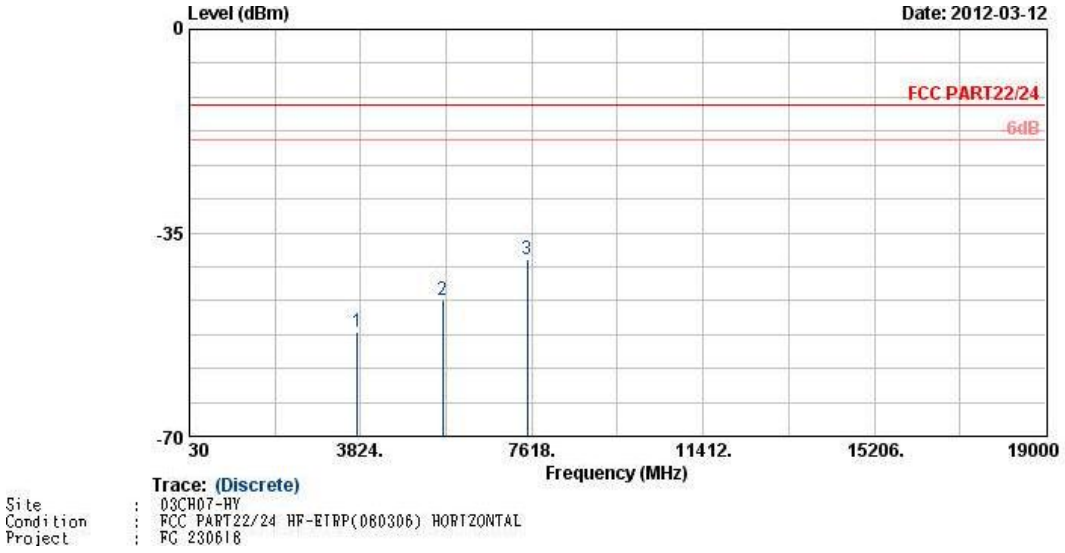
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-51.91	-13	-38.91	-67.12	-58.21	2.51	8.81	H	Pass
5636	-45.53	-13	-32.53	-66.19	-53.24	2.99	10.70	H	Pass
7520	-41.68	-13	-28.68	-68.33	-50.21	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



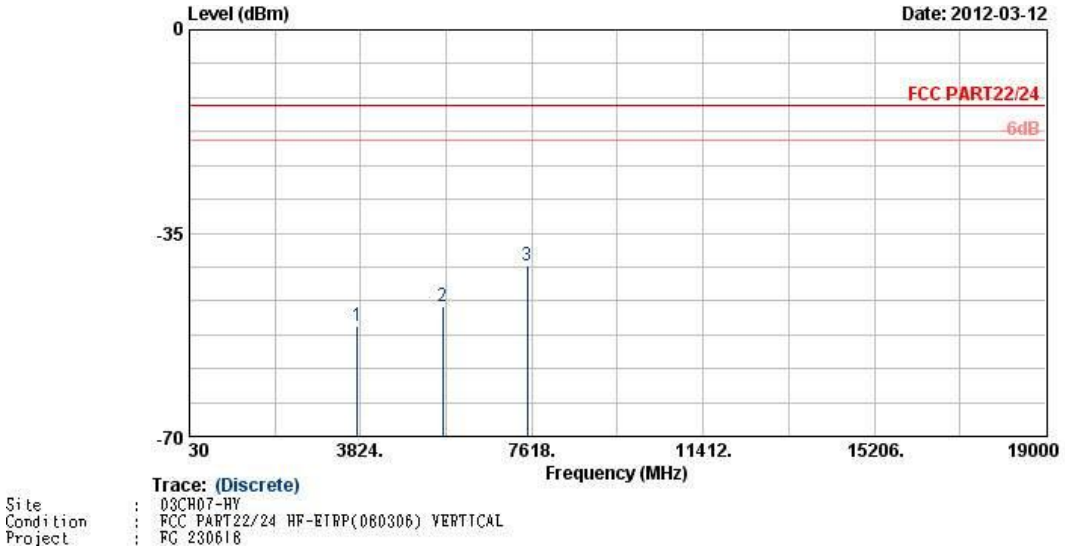
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.94	-13	-37.94	-66.51	-57.24	2.51	8.81	V	Pass
5636	-46.80	-13	-33.80	-67.22	-54.51	2.99	10.70	V	Pass
7520	-38.71	-13	-25.71	-65.84	-47.24	3.59	12.12	V	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	EDGE 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



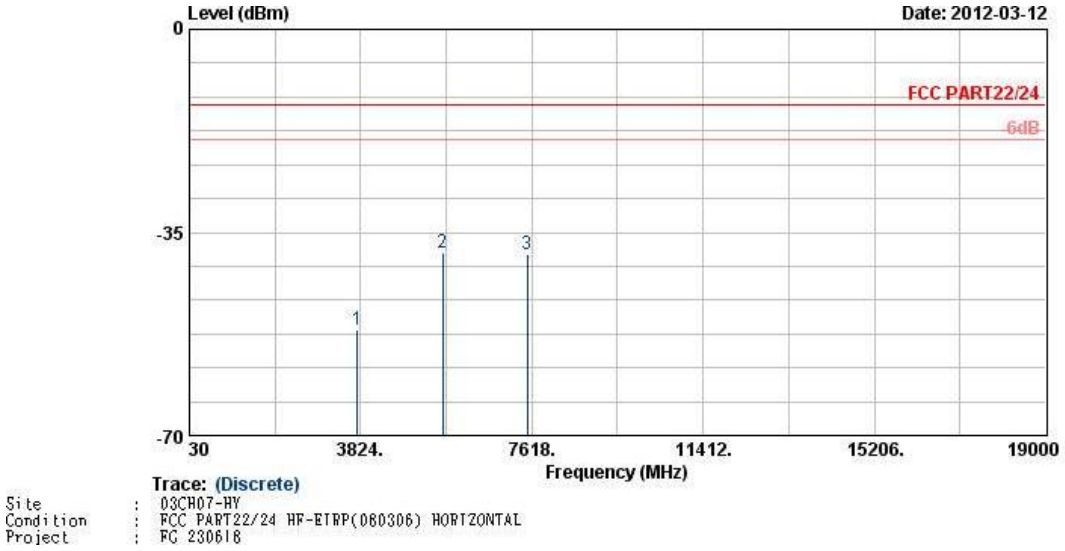
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-51.94	-13	-38.94	-66.7	-58.24	2.51	8.81	H	Pass
5636	-46.56	-13	-33.56	-67.69	-54.27	2.99	10.70	H	Pass
7520	-39.67	-13	-26.67	-67.23	-48.2	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	EDGE 8 Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



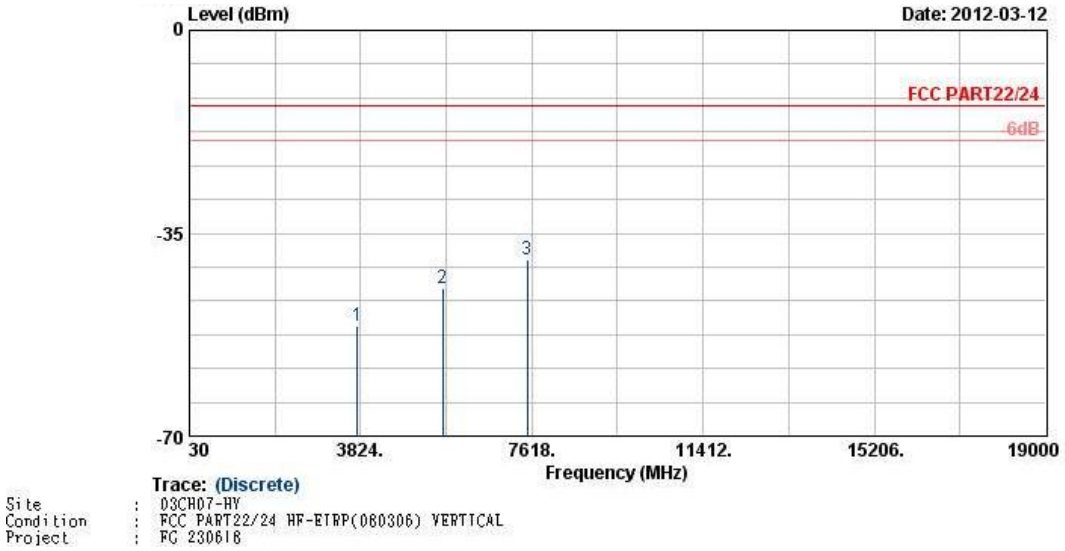
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.94	-13	-37.94	-67.07	-57.24	2.51	8.81	V	Pass
5636	-47.50	-13	-34.50	-68.01	-55.21	2.99	10.70	V	Pass
7520	-40.58	-13	-27.58	-67.37	-49.11	3.59	12.12	V	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 2	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



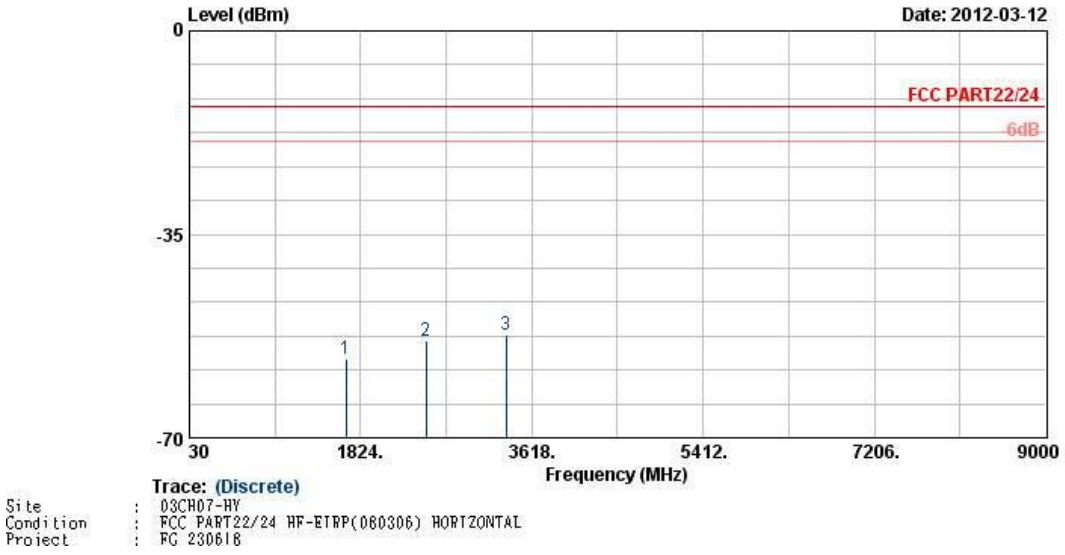
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-51.91	-13	-38.91	-66.6	-58.21	2.51	8.81	H	Pass
5636	-38.40	-13	-25.40	-58.79	-46.11	2.99	10.70	H	Pass
7520	-38.71	-13	-25.71	-65.41	-47.24	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	21~22°C
Test Mode :	GPRS 8 Link for Sample 2	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



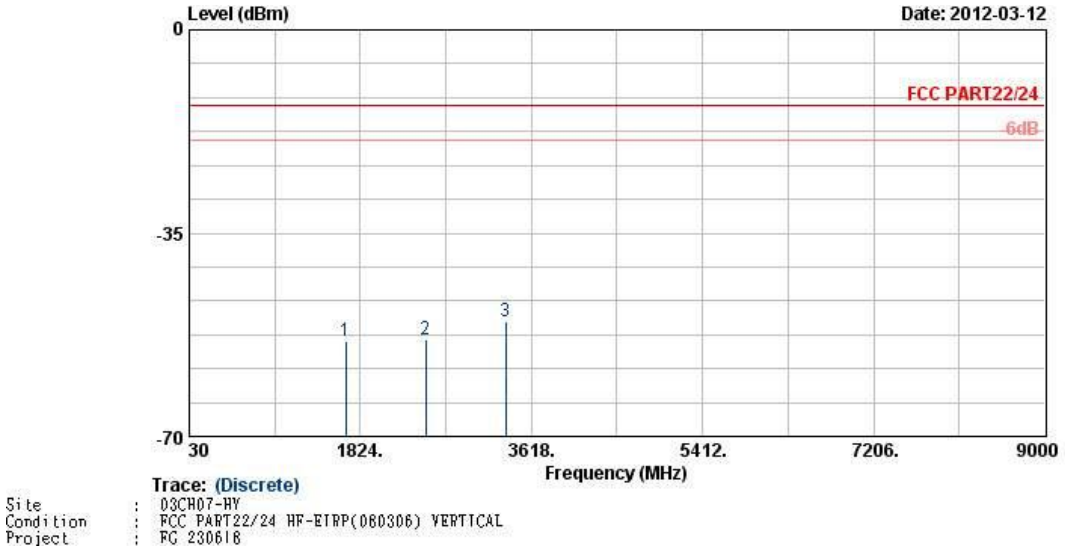
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.94	-13	-37.94	-66.58	-57.24	2.51	8.81	V	Pass
5636	-44.50	-13	-31.50	-64.87	-52.21	2.99	10.70	V	Pass
7520	-39.48	-13	-26.48	-40.48	-48.01	3.59	12.12	V	Pass

Band :	WCDMA Band V	Temperature :	21~22°C
Test Mode :	RMC 12.2Kbps Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



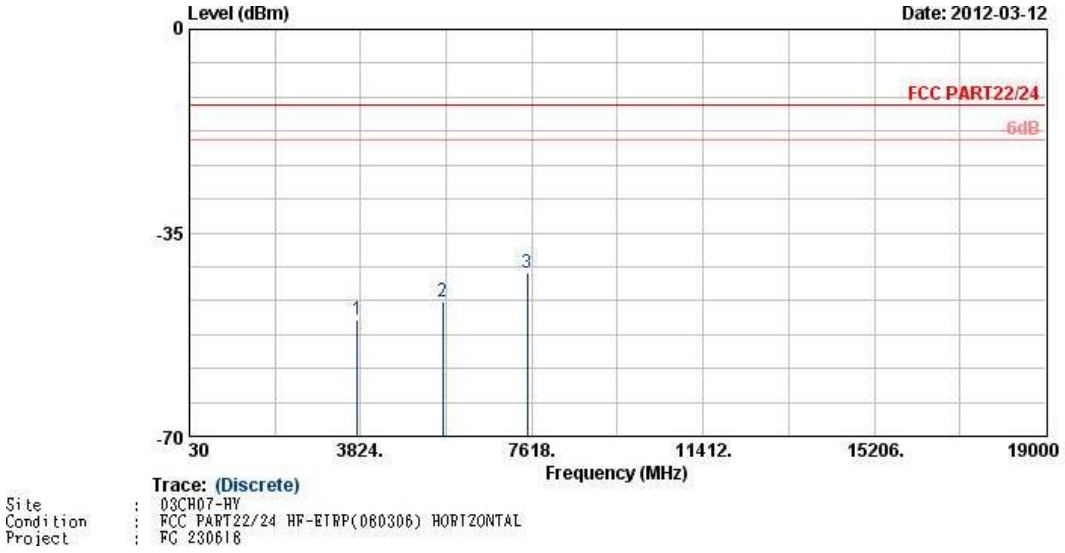
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-56.52	-13	-43.52	-65.66	-58.24	1.62	5.49	H	Pass
2509	-53.25	-13	-40.25	-66.78	-55.22	2.1	6.22	H	Pass
3345	-52.27	-13	-39.27	-66.53	-55.16	3.03	8.07	H	Pass

Band :	WCDMA Band V	Temperature :	21~22°C
Test Mode :	RMC 12.2Kbps Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



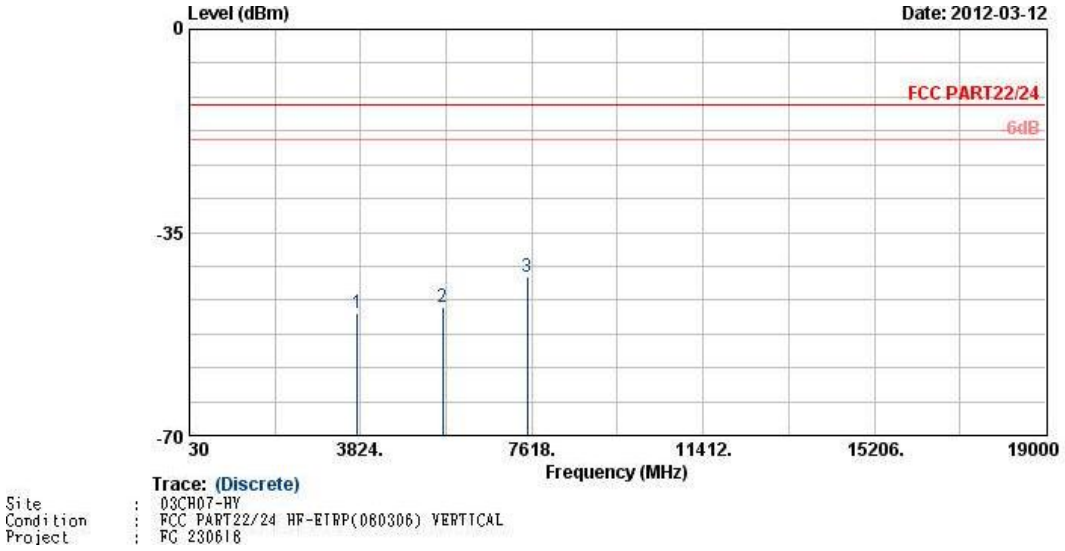
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-53.49	-13	-40.49	-65.47	-55.21	1.62	5.49	V	Pass
2509	-53.24	-13	-40.24	-67.08	-55.21	2.1	6.22	V	Pass
3345	-50.32	-13	-37.32	-66.05	-53.21	3.03	8.07	V	Pass

Band :	WCDMA Band II	Temperature :	21~22°C
Test Mode :	RMC 12.2Kbps Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-49.94	-13	-36.94	-65.23	-56.24	2.51	8.81	H	Pass
5636	-46.86	-13	-33.86	-67.7	-54.57	2.99	10.70	H	Pass
7520	-41.94	-13	-28.94	-68.85	-50.47	3.59	12.12	H	Pass

Band :	WCDMA Band II	Temperature :	21~22°C
Test Mode :	RMC 12.2Kbps Link for Sample 1	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-48.91	-13	-35.91	-65.59	-55.21	2.51	8.81	V	Pass
5636	-47.76	-13	-34.76	-68.83	-55.47	2.99	10.70	V	Pass
7520	-42.59	-13	-29.59	-68.05	-51.12	3.59	12.12	V	Pass

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Mar. 12, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Mar. 12, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Mar. 12, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Mar. 12, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10 ~ 1000MHz 32dB GAIN	Mar 29, 2011	Mar. 12, 2012	Mar 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Mar. 12, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 18, 2011	Mar. 12, 2012	Jul. 17, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Mar. 12, 2012	Jul. 28, 2012	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	117997	N/A	Aug. 22, 2011	Mar. 12, 2012	Aug. 21, 2012	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

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

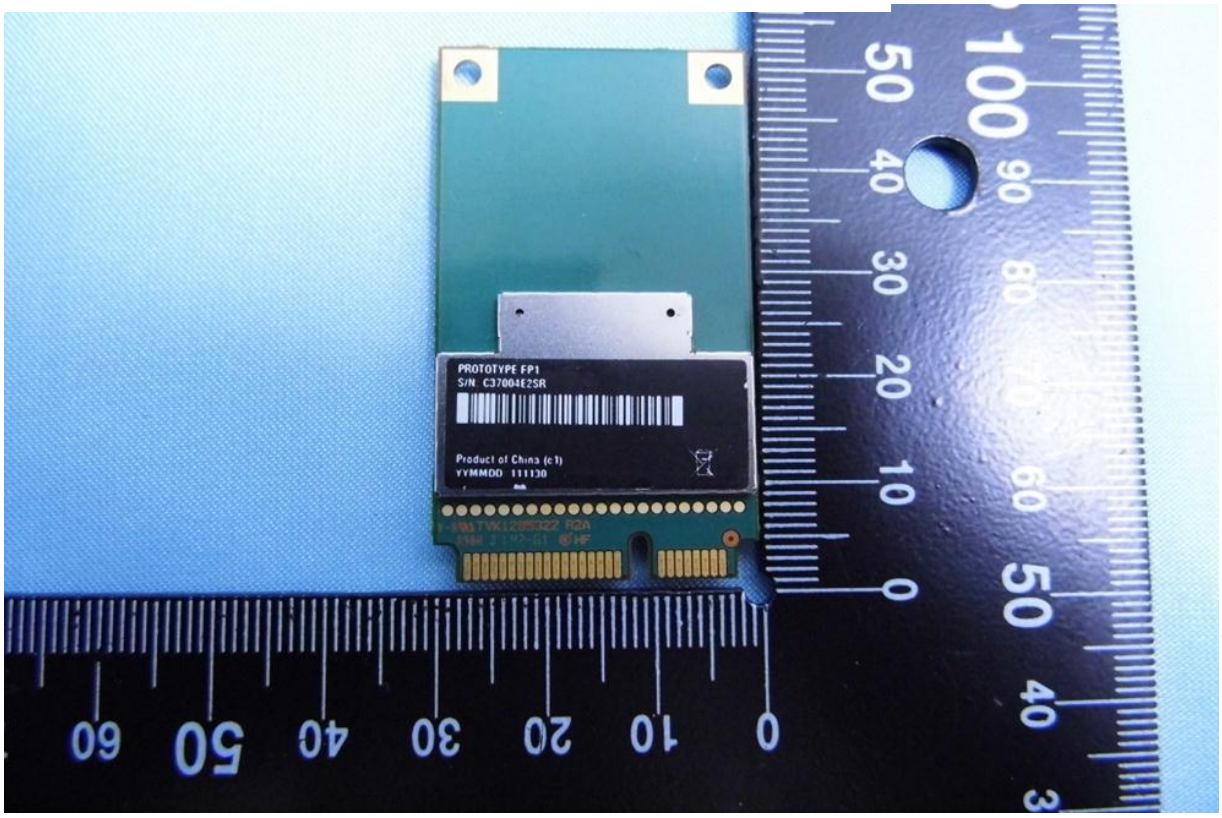
Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

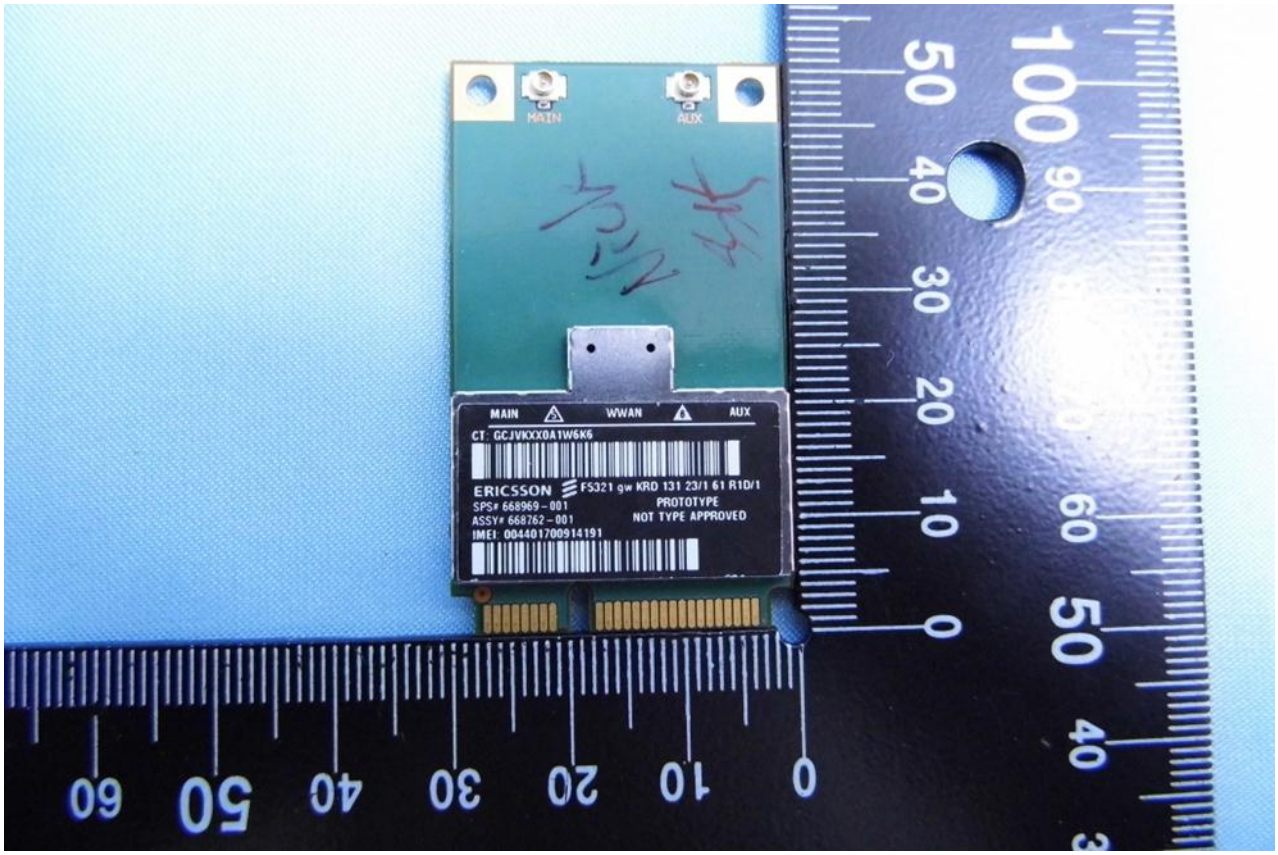
Appendix A. Photographs of EUT

Please refer to Sporton report number EP230618 as below.

1. Photograph of EUT

Brand Name: Ericsson AB / FCC ID : VV7-MBMF5321




MAIN
AUX
MAIN
WWAN
AUX
CT: GCJVKXX0A1W6K6
ERICSSON
FS321 gw KRD 131 23/1 61 R1D/1
SPS# 668969 - 001
ASSY# 668762 - 001
IMEI: 004401700914191
PROTOTYPE
NOT TYPE APPROVED

2. External Photograph of Integrated Host

Brand Name: hp / Model Name: HSTNN-W90C

3. Photograph of Accessory

List of Accessory:

Specification of Accessory		
AC Adapter	**Brand Name**	HP
	Model Name	PPP009D
Battery 1	**Brand Name**	HP
	Model Name	HSTNN-OB3M
Battery 2	**Brand Name**	HP
	Model Name	HSTNN-YB3M
WWAN Module	**Brand Name**	Ericsson
	Model Name	F5321
Antenna 1	**Brand Name**	Yageo
	Model Name	CAN4313HW0628LTA1
Antenna 2	**Brand Name**	Acom
	Model Name	APP8P-700366

Remark: For accessories equipped with this EUT, please refer to the following photos.


SAMPLE BY STL TECHNOLOGY

AC Adapter


N193
NIHON HEWLETT-PACKARD
(交流适配器/交换式電源供應器) AC Adapter (型号/型號) Regulatory Model PPP009D
(中国制造/中國製造) Product of China
HP Part No.: 608425-003
Replace With HP Spare: 609939-001
Compaq and HP are registered trademarks of the Hewlett-Packard Company.
For use with Compaq and HP products only.
R33030
001808
V85
4T18
E131881
US
LISTED
ITE POWER SUPPLY
SAFETY MARK
CAUTION : FOR INDOOR USE ONLY. (警告：限使用于信息技术设备及室内使用)
CONNECT ONLY TO GROUNDED OUTLET. (限使用於信息技術設備及室內使用)
Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk.
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.
Endast för kontorsmaskin.
WIDE RANGE INPUT
65W
(輸入/輸入)INPUT : 100-240V ~ 1.7A 50-60Hz
(輸出/輸出)OUTPUT : 18.5V 3.5A
C.C.:
K
制造商:台达电子工业股份有限公司
ADP-65HB BC
CT: WBGSV0AARZIUAD

Battery 1

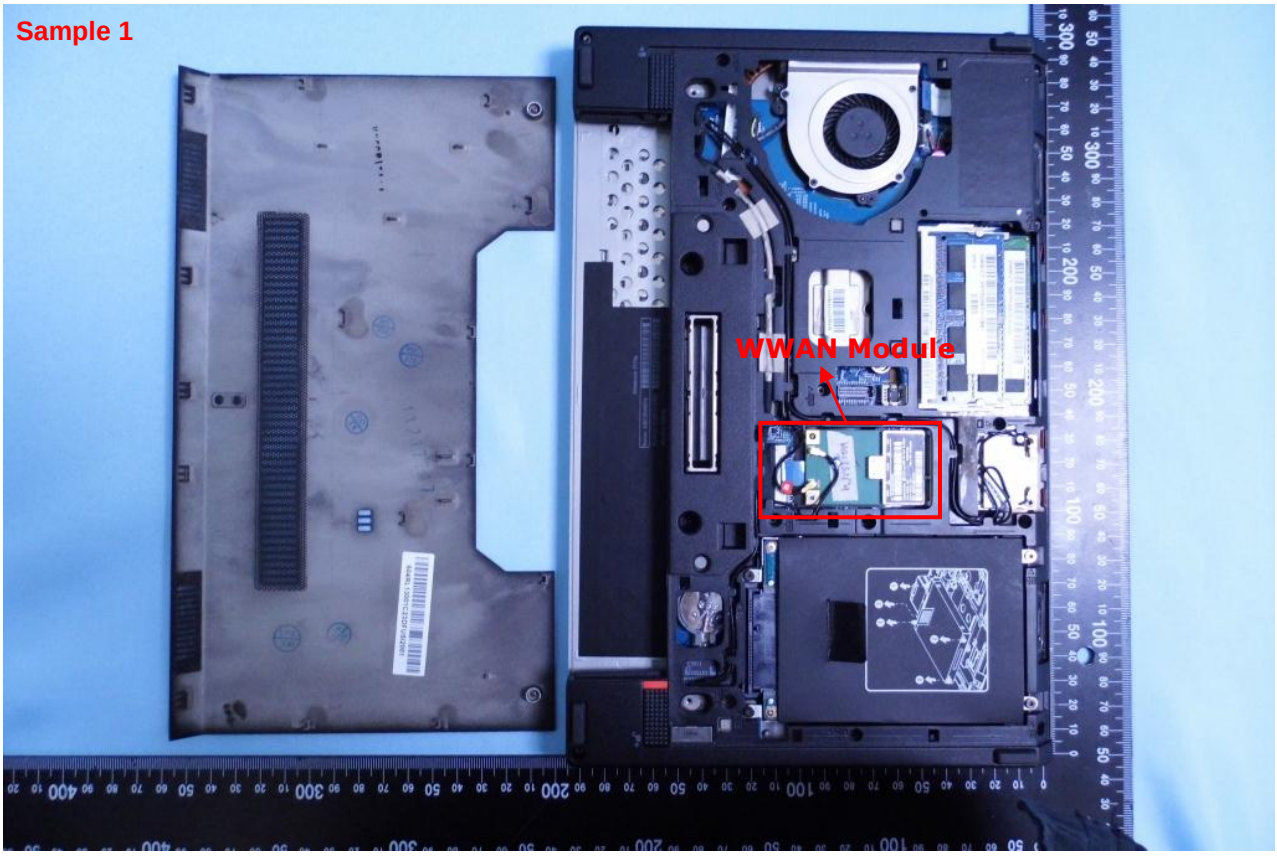

SAMPLE BY STL TECHNOLOGY
HSTNN-OB3M 系列
HP part number 670954-341
RATING: 11.1V ⎓ 44Wh
STL-CHA-SDI

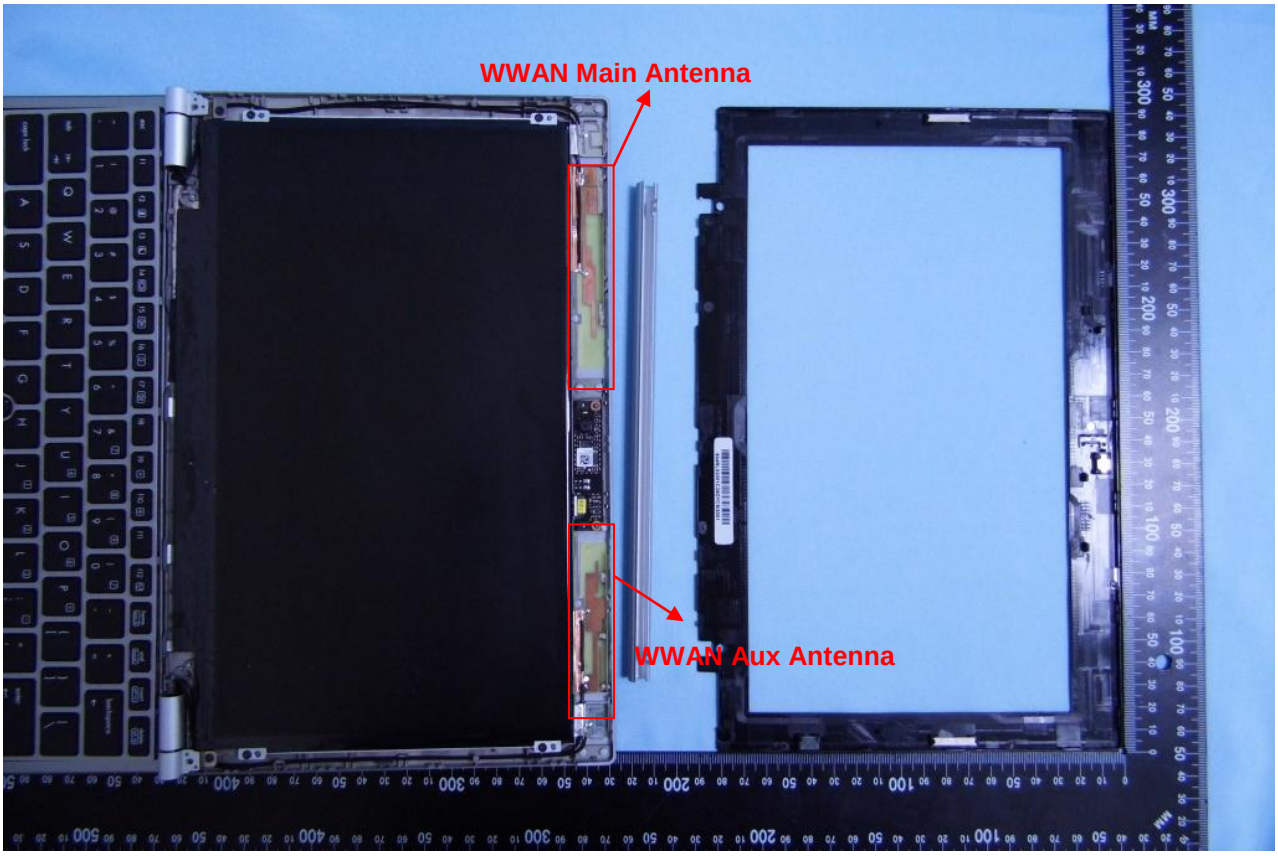
Battery 2

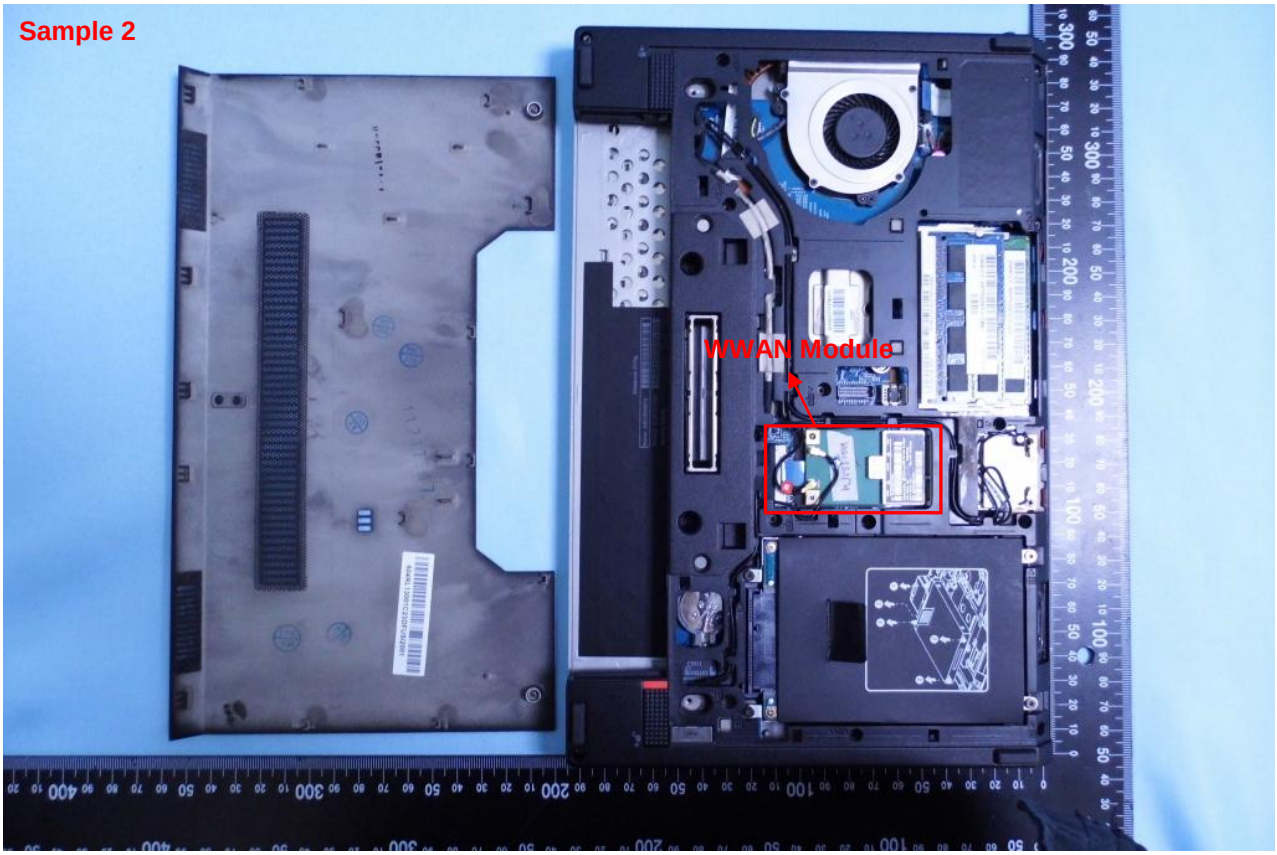

MI06 Notebook Battery
Regulatory Model Number : HSTNN-YB3M系列
CELL ORIGIN JAPAN FURTHER PROCESSED IN CHINA 电芯原产地日本并于中国加工组装
WARNING: To reduce the risk of fire or burns, do not disassemble, crush, or puncture; do not short external contacts; do not dispose of in fire or water.
警告：为避免引起火灾或燃烧，请勿拆卸、压损、刺戳电池；请勿使电池外部接点短路；请勿丢置于火里或水里。
FOR USE WITH HP SERIES HSTNN-W90C. FAMILY OF COMPUTER PRODUCTS ONLY.
HP is a registered trademark of Hewlett-Packard Company. HP part number 670954-851 Rechargeable Li-ion Battery
11.1V 44Wh
STORE BETWEEN
0°C TO 60°C
32°F TO 140°F
Li-ion

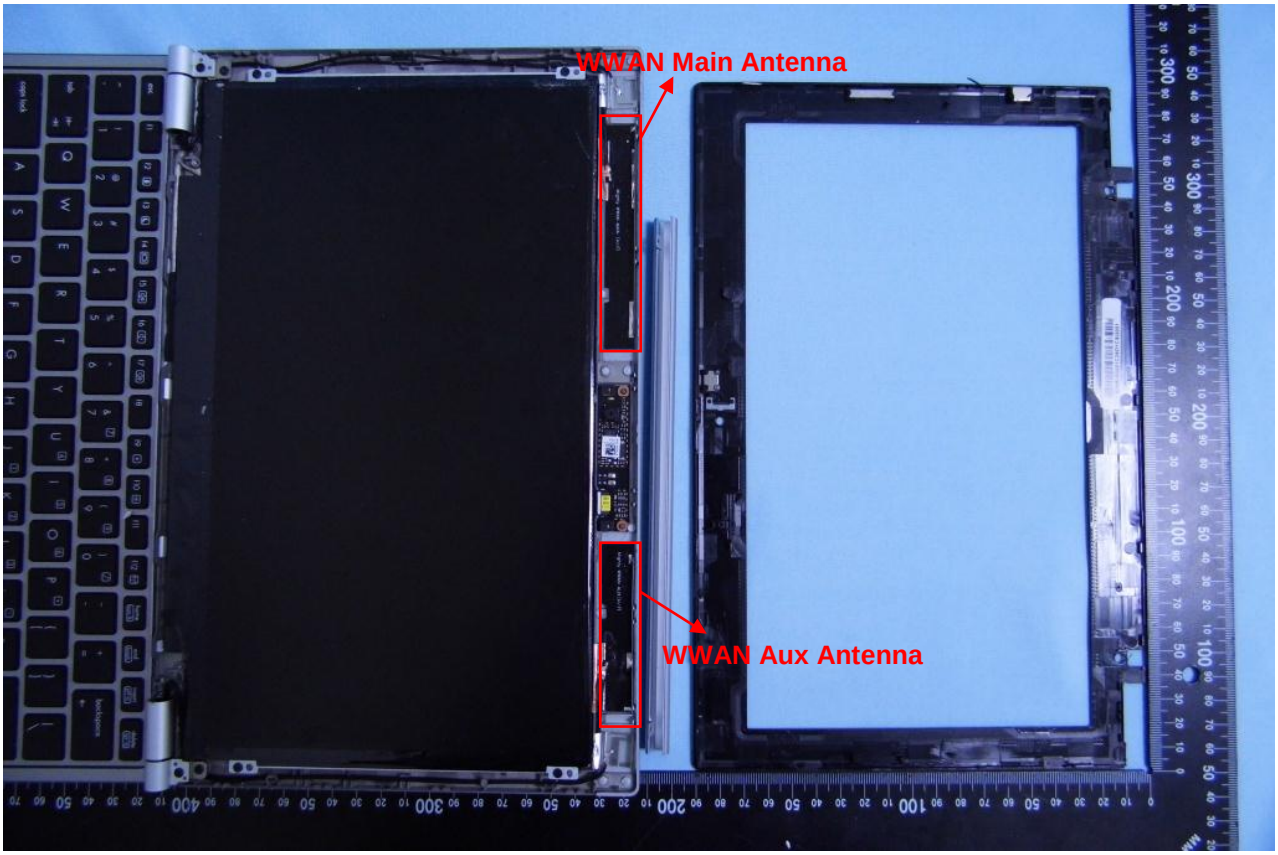
4. External Photograph of Integrated Host

Brand Name: hp / Model Name: HSTNN-W90C

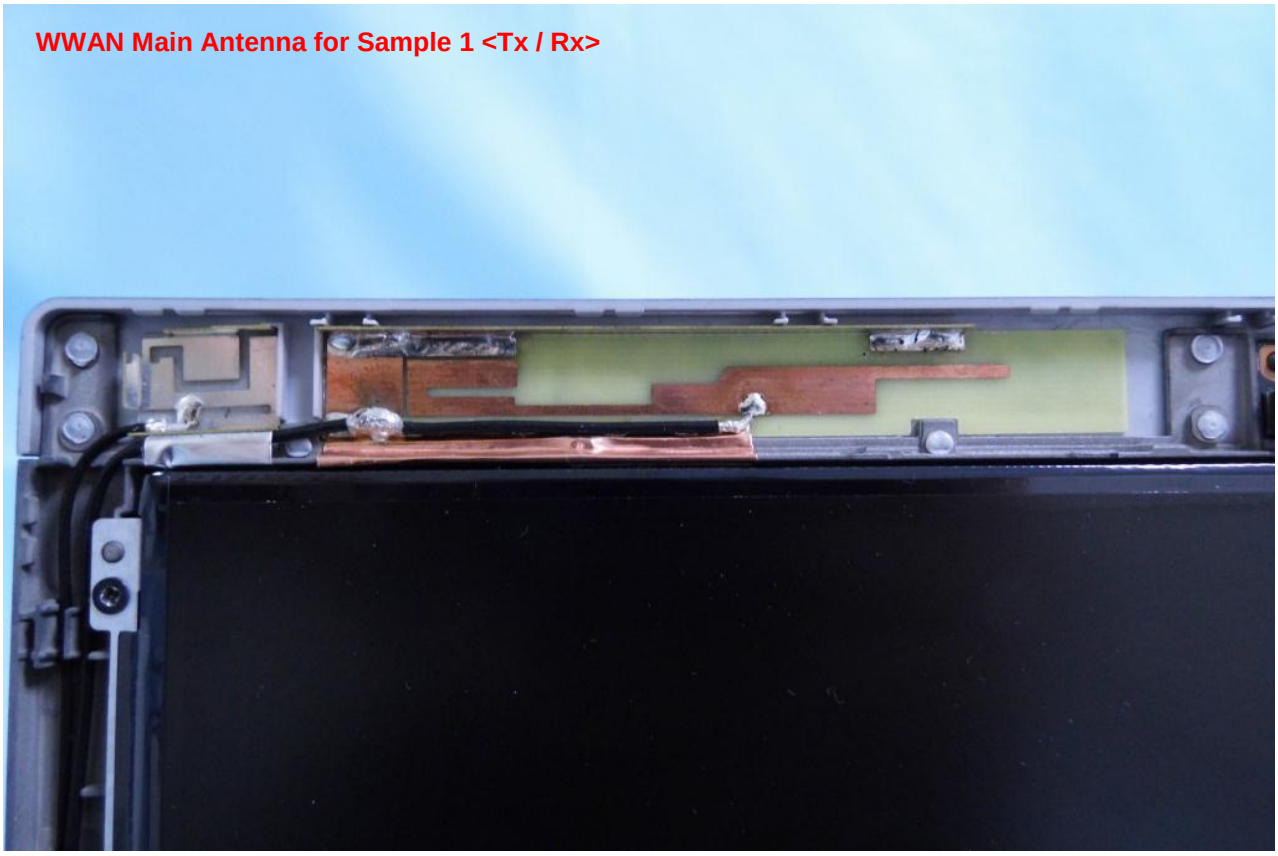



WWAN Main Antenna
WWAN Aux Antenna

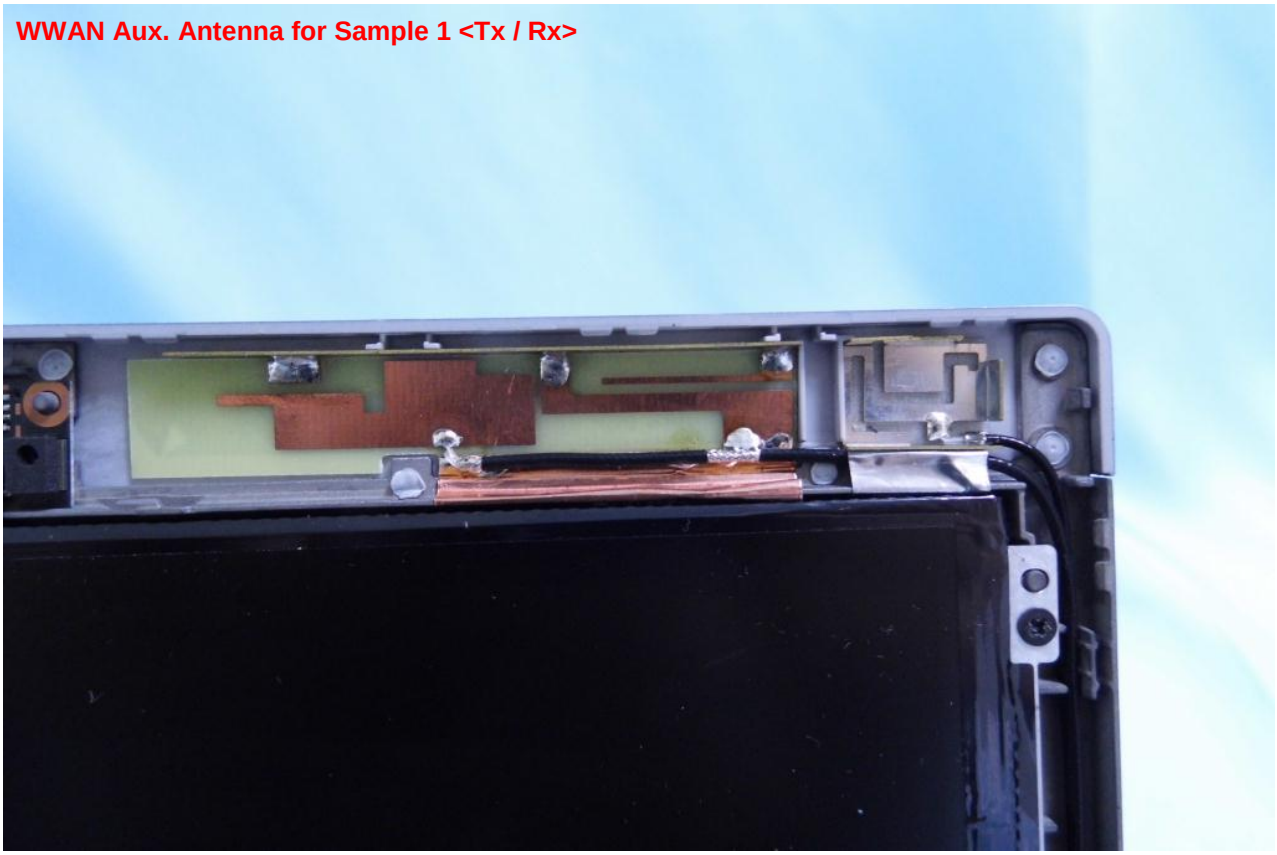

Sample 2
WWAN Module


WWAN Main Antenna
WWAN Aux Antenna

WWAN Main Antenna for Sample 1 <Tx / Rx>

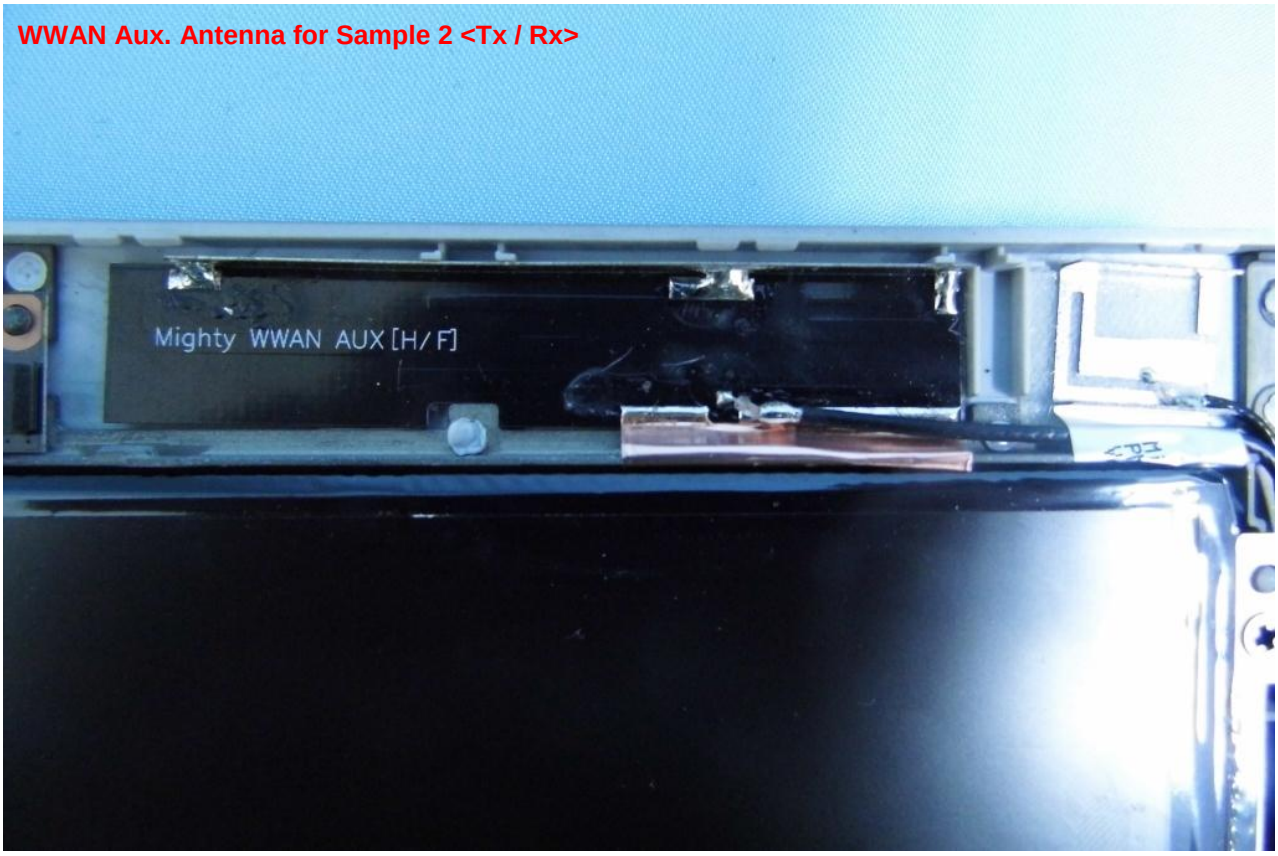


WWAN Aux. Antenna for Sample 1 <Tx / Rx>



WWAN Main Antenna for Sample 2 <Tx / Rx>

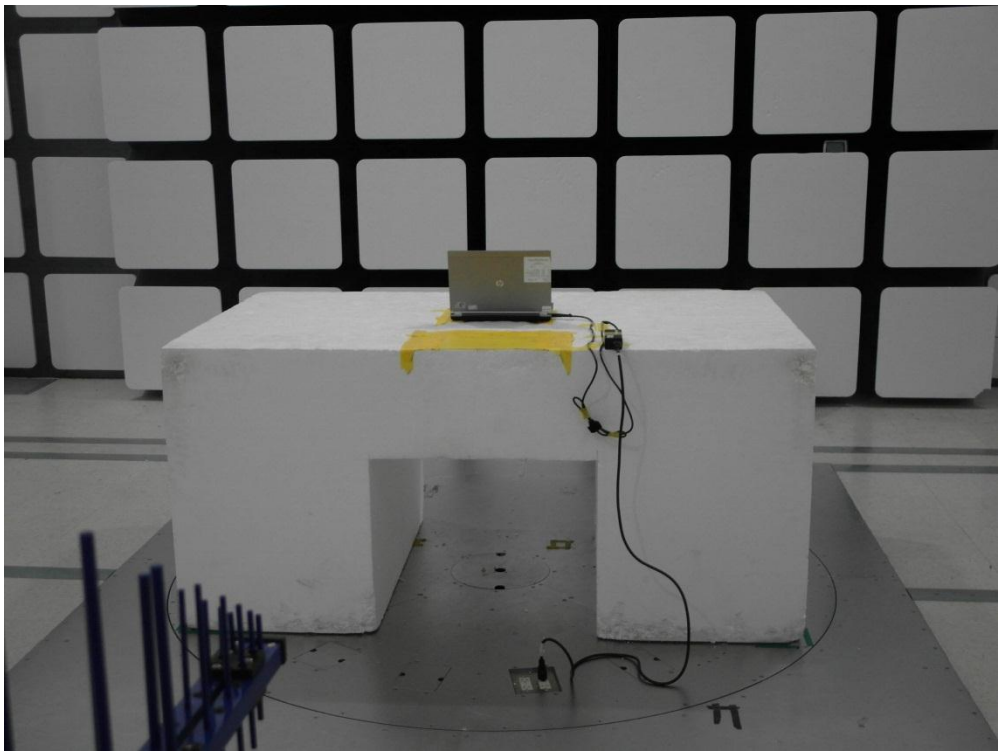
WWAN Aux. Antenna for Sample 2 <Tx / Rx>



Appendix B. Setup Photographs

<Radiated Emission>

LF



HF