

Regulatory WWAN Antenna Information

(English Language Required for Intel Regulatory Review / Approval)

Platform	
Platform Owner	Hewlett-Packard International Pte. Ltd.
Brand Name	Hewlett-Packard International Pte. Ltd.
Model Name	Outfield
ODM	Wistron Corporation
Target Launch Date	2011/05/16
Antenna	
Manufacturer	Amphenol Taiwan Corporation / Ethertronics
Part Number	<input checked="" type="checkbox"/> Main Antenna : 65.4KM05.001
	<input checked="" type="checkbox"/> AUX Antenna : 25.90A21.001
Module	
With WWAN Module	<input checked="" type="checkbox"/> Ericsson 5521
(Check Box)	<input checked="" type="checkbox"/> GOBI3000

Antenna Sample / Antenna Data Requirements for worldwide regulatory approval

Section	Description of Required OEM / ODM Antenna Information	US / IC	EU	Japan	Taiwan	S.Korea
1A	Part Number for Antenna only	Required	Required	Required	Required	Required
1B	Antenna Manufacturer Name	Required	Required	Required	Required	Required
1C	Description of Antenna Type	Required	N/A	N/A	N/A	N/A
1D	Part number of Antenna Assembly / cable impedance, length & diameter.	Required	Desired	Desired	Desired	Desired
1E	Tx1, Tx2 & Tx3 antenna (Peak Gain W/ cable loss) *	Required	Required	Required	Required	Required
	1E OR 1F, 1G, 1H					
1F	Tx1, Tx2 & Tx3 antenna (Peak Gain only) *	Required	Required	Required	Required	Required
1G	VSWR of cable including connector	Required	Required	Required	Required	Required
1H	Tx1, Tx2 & Tx3 antenna (Cable loss W/ connector) *	Required	Required	Required	Required	Required
2	Dimensioned Photographs and Drawings of Tx1, Tx2, and Tx3 (or Rx3) antennas	Required	Required	Required	Required	Required
3	Radiation patterns of antennas loaded in the host platform.	Required	Desired	Required	N/A	Required
4	Platform model name / number - correlated to antenna manufacturer and antenna part number	Required	Required	Desired	Required	Desired
5	Photograph(s) or Drawings showing location of antennas in platform. <u>(S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system.</u>	Required	Required	Desired	Required (Photos)	Required (Photos)
6	Mech. drawings / photos with dimensions of antenna locations and distance from end-user (For evaluation of SAR testing requirement).	Required	N/A	N/A	N/A	N/A
7	Photograph(s) or Drawings showing the location of all antennas (WLAN, other) and distance between those transmitting antennas. Information will be used to evaluate whether co-location testing is required.	Required	N/A	N/A	N/A	N/A
8	Local representative contact information for LMA/ PARS process.	Required	N/A	N/A	N/A	N/A

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

MAIN:

1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
Main Antenna: ATC P/N: WT5195-11-001-C Wistron P/N: 65.4KM05.001 (Laptop Mode)	Amphenol Taiwan Corporation	monopole	Cable: 50 ohm Coaxial. Length: 490 mm Diameter: 1.13 Low Loss Coaxial Connector: I-PEX Connector	824-894MHz 0.60 dBi (peak)	824-894MHz 1.37 dBi (peak)	824-849MHz 3 max	824-894MHz 0.77 dBi (peak)
				880-960MHz 0.13 dBi (peak)	880-960MHz 1.0 dBi (peak)	880-960MHz 3 max	880-960MHz 0.87 dBi (peak)
				1710-1880MHz 1.10 dBi (peak)	1710-1880MHz 2.17 dBi (peak)	1710-1880MHz 2 max	1710-1880MHz 1.07 dBi (peak)
				1850-1990MHz 1.01 dBi (peak)	1850-1990MHz 2.18 dBi (peak)	1850-1990MHz 2 max	1850-1990MHz 1.17 dBi (peak)
				1920-2170MHz 1.01 dBi (peak)	1920-2170MHz 2.2 dBi (peak)	1920-2170MHz 2 max	1920-2170MHz 1.19 dBi (peak)
Main Antenna: ATC P/N: WT5195-11-001-C Wistron P/N: 65.4KM05.001 (Tablet Mode)	Amphenol Taiwan Corporation	monopole	Cable: 50 ohm Coaxial. Length: 490 mm Diameter: 1.13 Low Loss Coaxial Connector: I-PEX Connector	824-894MHz -0.38 dBi (peak)	824-894MHz 0.39 dBi (peak)	824-849MHz 3 max	824-894MHz 0.77 dBi (peak)
				880-960MHz -1.21 dBi (peak)	880-960MHz -0.34 dBi (peak)	880-960MHz 3 max	880-960MHz 0.87 dBi (peak)
				1710-1880MHz -0.40 dBi (peak)	1710-1880MHz 0.67 dBi (peak)	1710-1880MHz 2 max	1710-1880MHz 1.07 dBi (peak)
				1850-1990MHz -1.05 dBi (peak)	1850-1990MHz 0.12 dBi (peak)	1850-1990MHz 2 max	1850-1990MHz 1.17 dBi (peak)
				1920-2170MHz -1.05 dBi (peak)	1920-2170MHz 0.14 dBi (peak)	1920-2170MHz 2 max	1920-2170MHz 1.19 dBi (peak)

AUX:

1A Antenna Part Number	1B Manufacture	1C Antenna Type	1D Cable Assembly Part Number and Information	1E *Peak Gain W/ Cable loss (dBi)	1F Peak Gain w/o Cable Loss (dBi)	1G VSWR	1H Cable Loss (dBi)
(P/N: 25.90A21.001) Diversity Antenna (Laptop Mode) ET P/N: 5027011	Ethertronics Inc.	PIFA	(P/N: NR-72120000557C-B KS) 50 ohm Coaxial. length: 520mm diameter: 1.13mm Connector: U.FL	869-894MHz -2.30 dBi (peak)	869-894MHz -1.52 dBi (peak)	869-894MHz 3.63 max	869-894MHz -0.78 dBi (peak)
				925-960MHz 0.18 dBi (peak)	925-960MHz 0.98 dBi (peak)	925-960MHz 1.99 max	925-960MHz -0.80 dBi (peak)
				1575MHz 1.09 dBi (peak)	1575MHz 2.09 dBi (peak)	1575MHz 1.42 max	1575MHz -1.00 dBi (peak)
				1805-1880MHz 1.18 dBi (peak)	1805-1880MHz 2.35 dBi (peak)	1805-1880MHz 2.07 max	1805-1880MHz -1.17 dBi (peak)
				1930-1990MHz 0.33 dBi (peak)	1930-1990MHz 1.51 dBi (peak)	1930-1990MHz 2.05 max	1930-1990MHz -1.21 dBi (peak)
				2110-2170MHz -2.02 dBi (peak)	2110-2170MHz -0.75 dBi (peak)	2110-2170MHz 2.33 max	2110-2170MHz -1.27 dBi (peak)
(P/N: 25.90A21.001) Diversity Antenna (Tablet Mode) ET P/N: 5027011	Ethertronics Inc.	PIFA	(P/N: NR-72120000557C-B KS) 50 ohm Coaxial. length: 520mm diameter: 1.13mm Connector: U.FL	869-894MHz -6.23 dBi (peak)	869-894MHz -5.45 dBi (peak)	869-894MHz 2.76 max	869-894MHz -0.78 dBi (peak)
				925-960MHz -5.65 dBi (peak)	925-960MHz -4.85 dBi (peak)	925-960MHz 2.13 max	925-960MHz -0.80 dBi (peak)
				1575MHz -4.25 dBi (peak)	1575MHz -3.25 dBi (peak)	1575MHz 1.06 max	1575MHz -1.00 dBi (peak)
				1805-1880MHz -5.20 dBi (peak)	1805-1880MHz -4.03 dBi (peak)	1805-1880MHz 1.98 max	1805-1880MHz -1.17 dBi (peak)
				1930-1990MHz -3.97 dBi (peak)	1930-1990MHz -2.76 dBi (peak)	1930-1990MHz 2.25 max	1930-1990MHz -1.21 dBi (peak)
				2110-2170MHz -5.42 dBi (peak)	2110-2170MHz -4.15 dBi (peak)	2110-2170MHz 2.08 max	2110-2170MHz -1.27 dBi (peak)

- Antenna Peak Gain required being test in system basis.
- 1E frame contend absolutely peak antenna gain include H/V

Antenna Peak Gain Table:
MAIN

Frequency (MHz)	Main antenna Laptop mode		Main antenna Tablet mode	
	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
824	-0.44	0.57	-1.97	-0.38
836	-0.39	0.60	-1.93	-0.51
849	-0.19	0.54	-1.55	-0.94
869	-0.60	0.27	-1.66	-1.49
880	-0.61	0.13	-1.26	-1.41
894	-0.25	-0.14	-1.38	-1.59
900	-0.53	-0.44	-1.70	-1.68
915	-0.53	-0.30	-1.63	-1.89
925	-0.51	-0.49	-1.36	-2.12
940	-0.33	0.06	-1.44	-2.54
960	-0.17	-0.02	-1.21	-2.93
1710	1.10	0.63	-0.89	-0.40
1750	0.78	1.04	-1.39	-0.61
1785	0.18	1.10	-1.83	-1.29
1805	-0.26	0.65	-2.01	-1.37
1840	-0.08	0.23	-1.50	-1.32
1850	0.23	0.13	-1.41	-1.27
1880	-0.01	0.33	-1.29	-1.23
1910	-0.68	0.25	-1.39	-1.34
1920	-0.80	-0.94	-1.36	-1.05
1930	-0.52	-0.73	-1.53	-1.17
1950	-0.55	-0.28	-1.66	-1.12
1960	-0.57	0.82	-1.97	-1.12
1980	-0.52	0.72	-1.72	-1.31
1990	-0.91	1.01	-1.75	-1.46
2110	-2.08	0.96	-3.79	-2.76
2140	-3.33	-0.39	-4.40	-3.19
2170	-2.56	-1.03	-3.47	-3.44

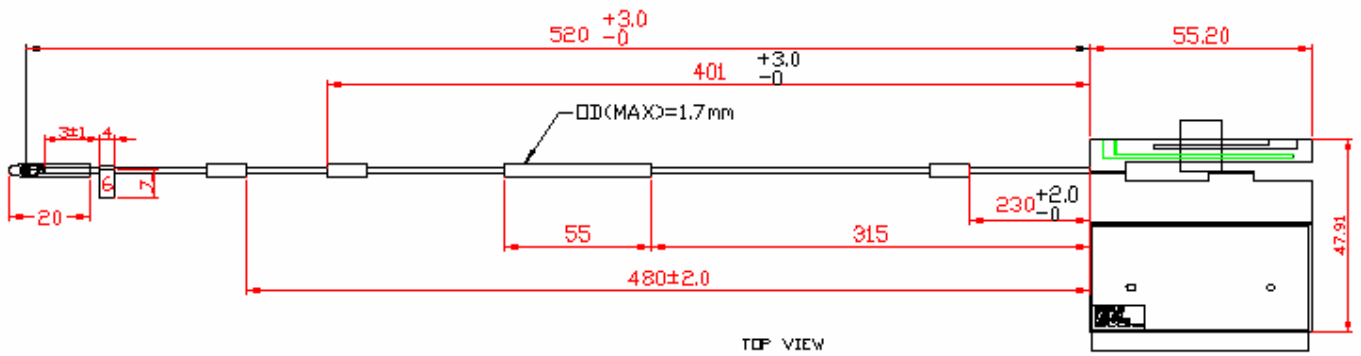
**Antenna Peak Gain Table:
AUX**

Frequency (MHz)	Aux antenna Laptop mode			Aux Antenna Tablet mode		
	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)	Horizontal (dBi)	Vertical (dBi)	Hori+Ver (dBi)
869.2	-5.27	-6.32	-3.60	-8.67	-11.09	-7.69
881.6	-4.68	-5.34	-2.89	-7.81	-10.52	-6.84
893.8	-4.15	-4.23	-2.30	-7.08	-10.29	-6.23
925.2	-2.26	-1.66	-0.14	-7.07	-10.14	-5.65
942.4	-2.02	-1.76	0.18	-7.89	-11.11	-6.41
958.8	-2.03	-1.84	0.18	-9.33	-12.11	-7.75
1575	-3.00	0.91	1.09	-6.90	-5.54	-4.25
1805.2	-2.64	0.59	1.18	-5.68	-10.52	-5.20
1842.4	-2.97	0.54	1.07	-6.43	-7.61	-5.81
1897.8	-2.62	0.59	1.10	-6.09	-6.66	-3.97
1930.2	-3.01	-0.26	0.33	-6.08	-7.23	-3.97
1960	-3.62	-1.03	-0.23	-6.09	-6.76	-4.84
1989.8	-3.65	-2.00	-0.81	-6.89	-6.65	-5.42
2112.2	-5.06	-2.97	-2.02	-8.32	-6.77	-5.79
2140	-5.19	-2.86	-2.17	-8.86	-6.45	-5.42
2167.6	-5.40	-2.59	-2.52	-8.03	-7.75	-6.61

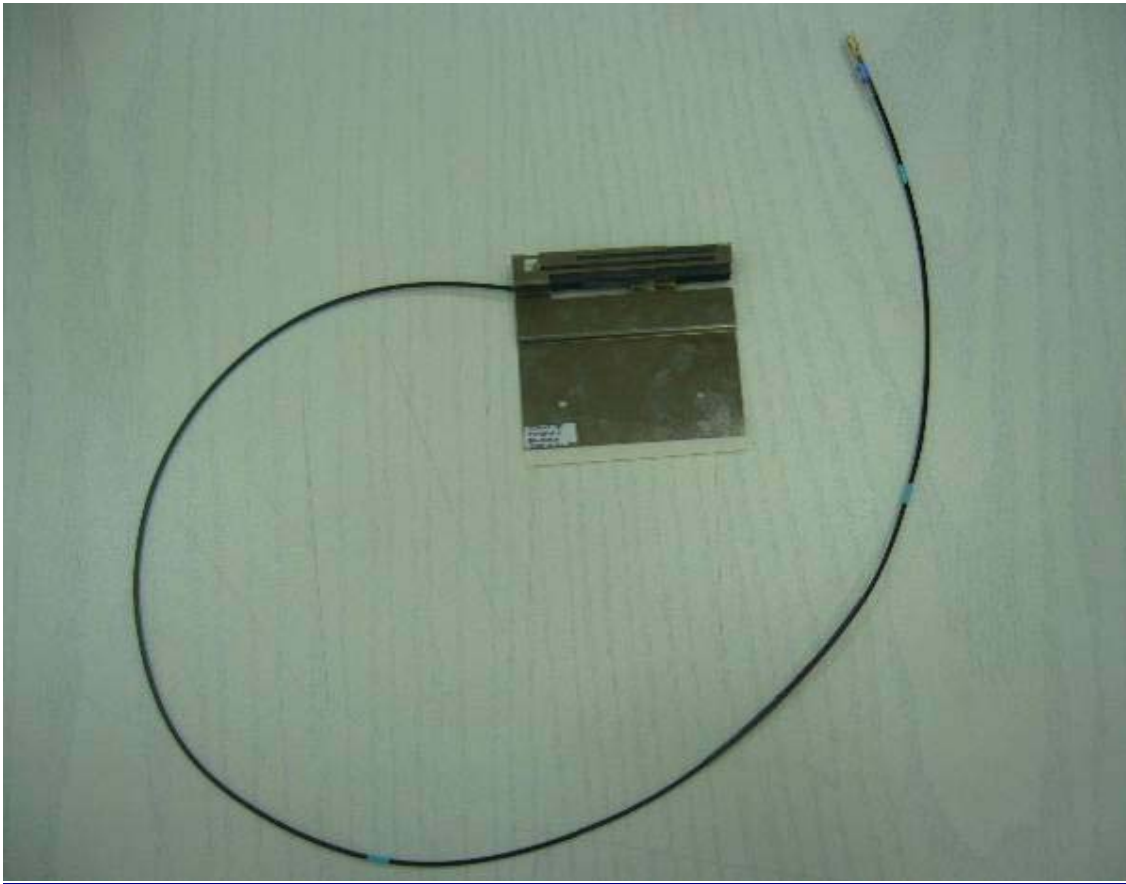
- Antenna Peak Gain required being test in system basis.
- 1E frame contend absolutely peak antenna gain include H/V

Include a dimensioned photo and dimensioned drawing of Tx2 (or Rx2) antenna here.

Tx2 (or Rx2) Antenna Dimensioned Drawing:



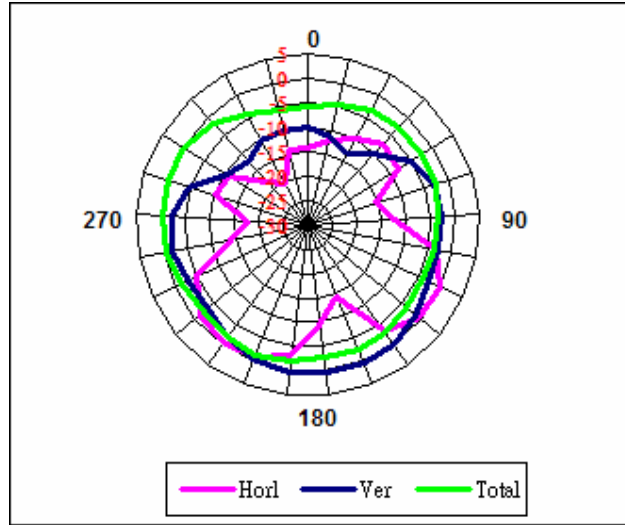
Tx2 (or Rx2) Antenna Photo:



Section 3. Radiation characteristics of antennae Loaded in Host Platform

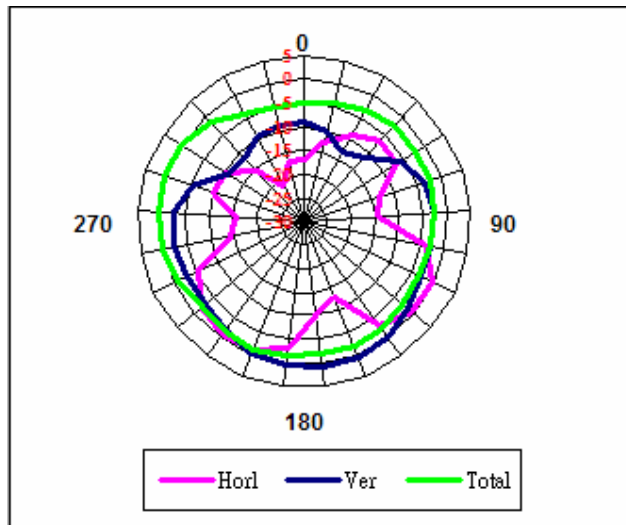
850MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

Main antenna: 824 MHz(Laptop)



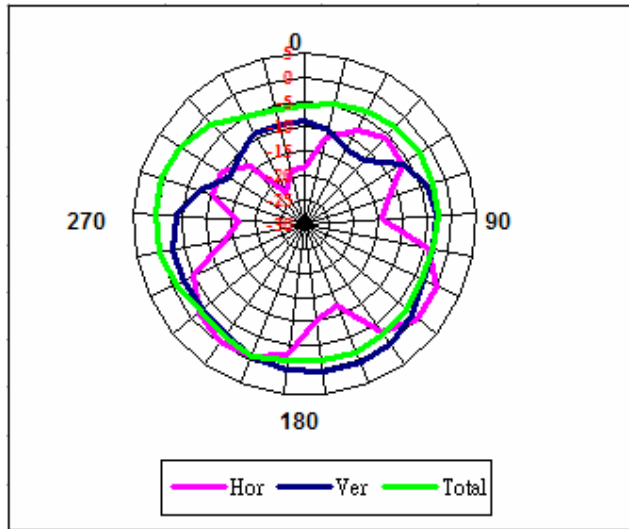
Frequency	824 MHz
Vertical peak gain (dBi)	0.57
Horizontal peak gain (dBi)	-0.44

Main antenna: 836 MHz(Laptop)



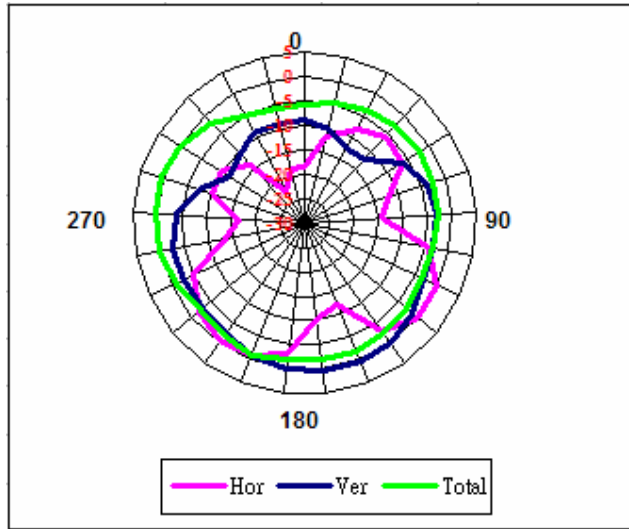
Frequency	836 MHz
Vertical peak gain (dBi)	0.60
Horizontal peak gain (dBi)	-0.39

Main antenna: 849 MHz(Laptop)



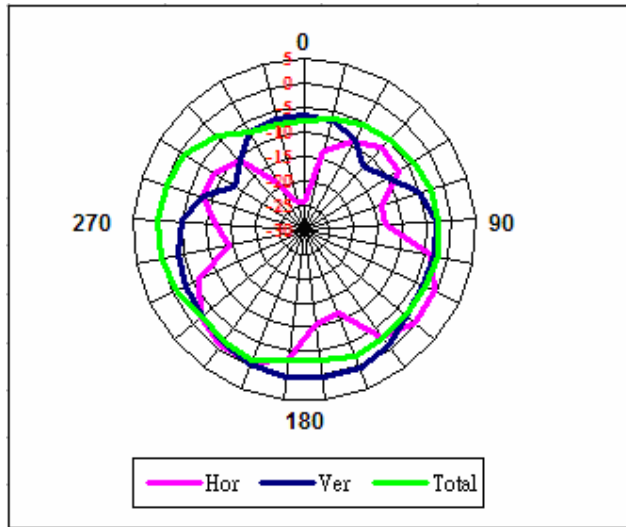
Frequency	849 MHz
Vertical peak gain (dBi)	0.54
Horizontal peak gain (dBi)	-0.19

Main antenna: 869 MHz(Laptop)



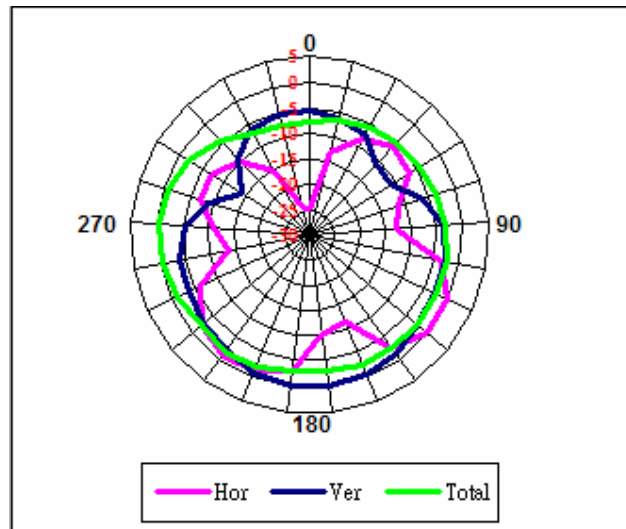
Frequency	869 MHz
Vertical peak gain (dBi)	0.27
Horizontal peak gain (dBi)	-0.60

Main antenna: 880 MHz(Laptop)



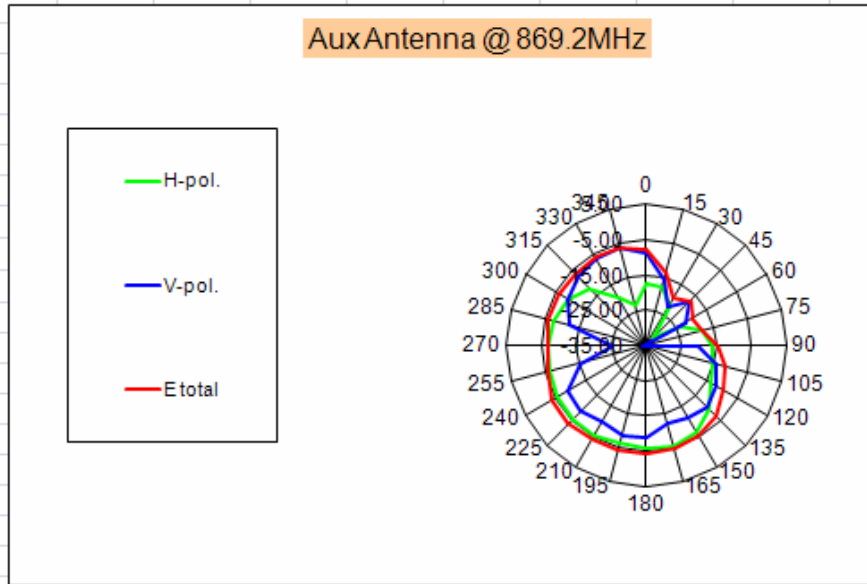
Frequency	849 MHz
Vertical peak gain (dBi)	0.13
Horizontal peak gain (dBi)	-0.61

Main antenna: 894 MHz(Laptop)



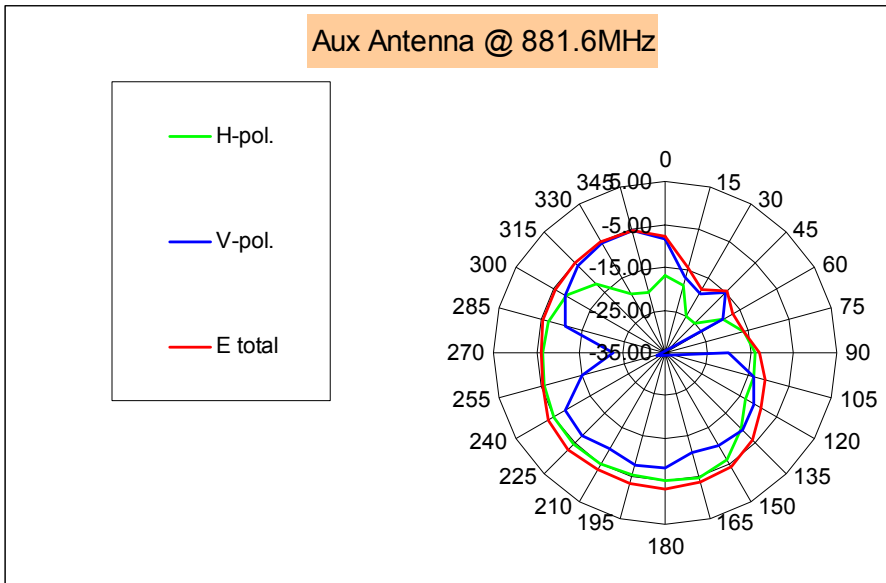
Frequency	894 MHz
Vertical peak gain (dBi)	-0.14
Horizontal peak gain (dBi)	-0.25

Aux antenna: 869.2 MHz(Laptop)



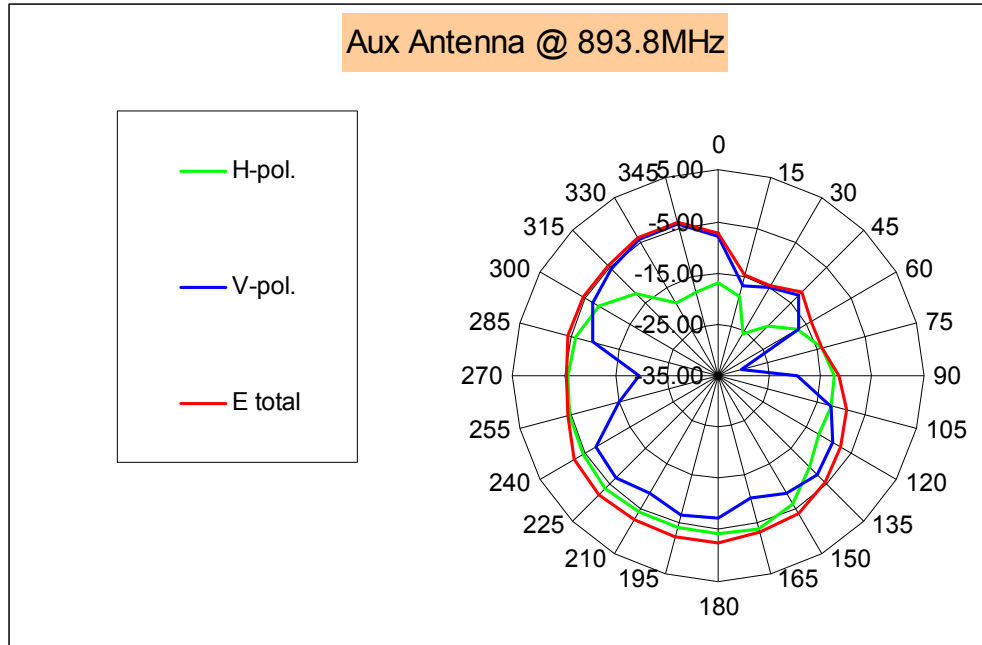
Center Frequency	869.2 MHz
Horizontal (dBi) peak	-5.27
Vertical (dBi) peak	-6.32

Aux antenna: 881.6 MHz(Laptop)



Center Frequency	881.6 MHz
Horizontal (dBi) peak	-4.68
Vertical (dBi) peak	-5.34

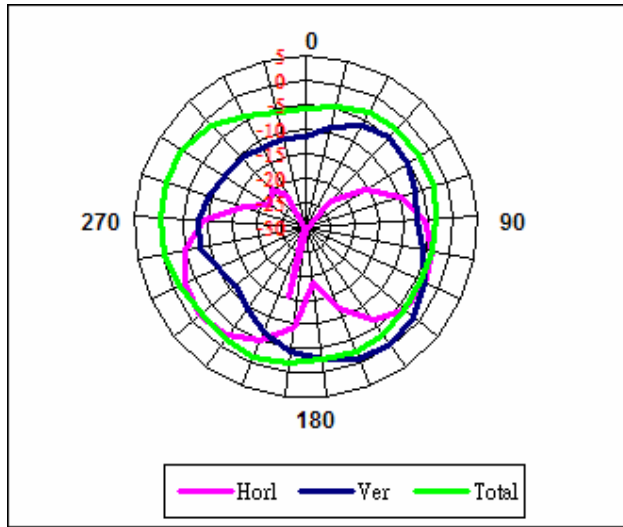
Aux antenna: 893.8 MHz(Laptop)



Center Frequency	893.8 MHz
Horizontal (dBi) peak	-4.15
Vertical (dBi) peak	-4.23

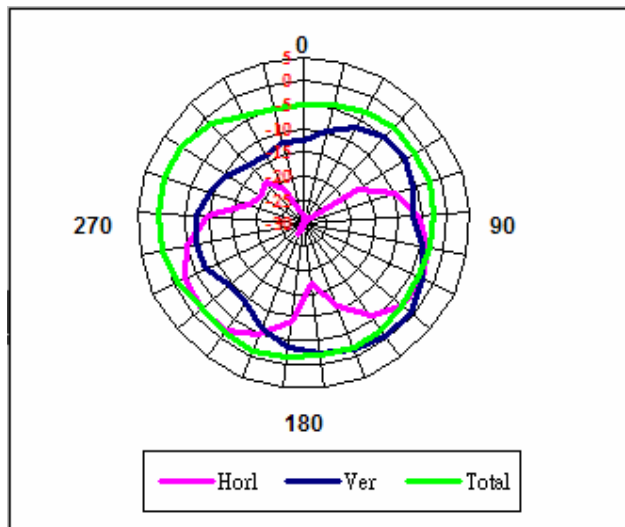
850MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

Main antenna: 824 MHz(Tablet)



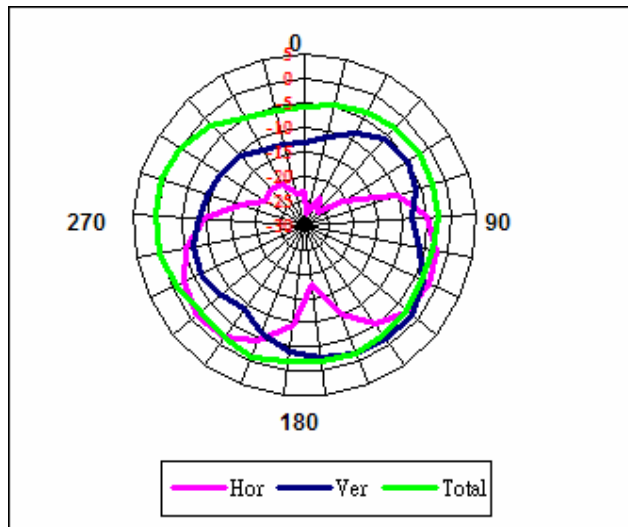
Frequency	824 MHz
Vertical peak gain (dBi)	-0.38
Horizontal peak gain (dBi)	-1.97

Main antenna: 836 MHz(Tablet)



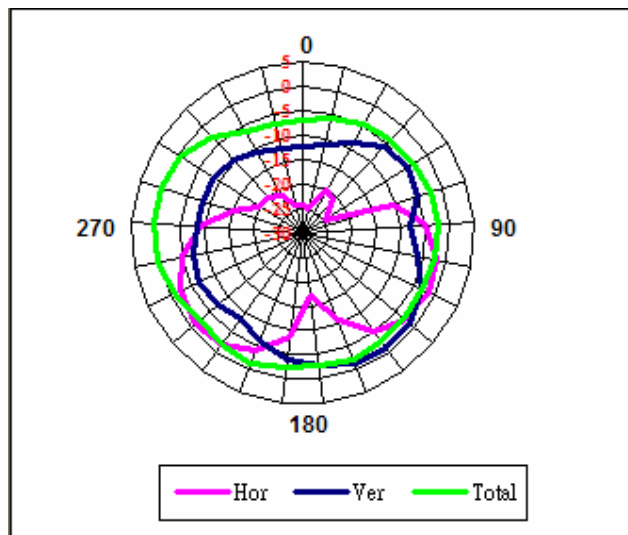
Frequency	836 MHz
Vertical peak gain (dBi)	-0.51
Horizontal peak gain (dBi)	-1.93

Main antenna: 849 MHz(Tablet)



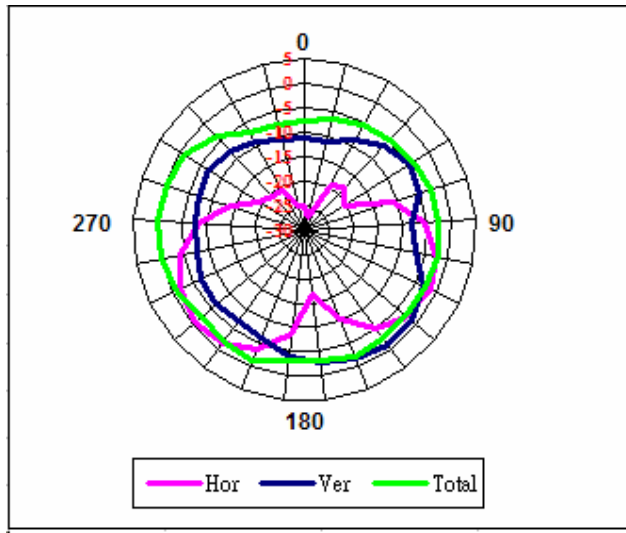
Frequency	849 MHz
Vertical peak gain (dBi)	-0.94
Horizontal peak gain (dBi)	-1.55

Main antenna: 869 MHz(Tablet)



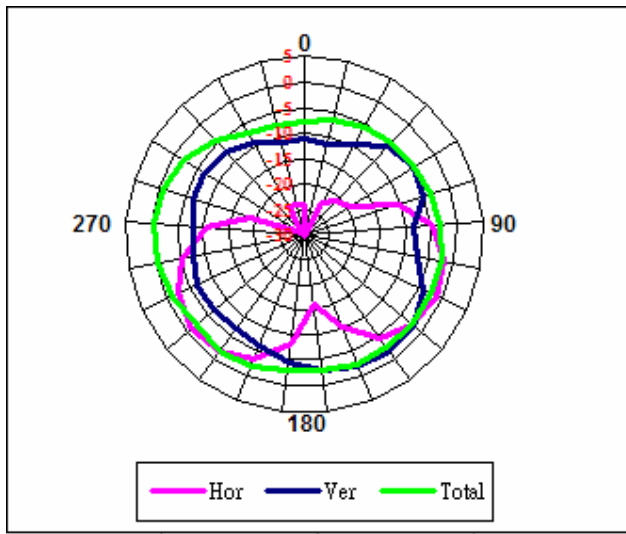
Frequency	869 MHz
Vertical peak gain (dBi)	-1.49
Horizontal peak gain (dBi)	-1.66

Main antenna: 880 MHz(Tablet)



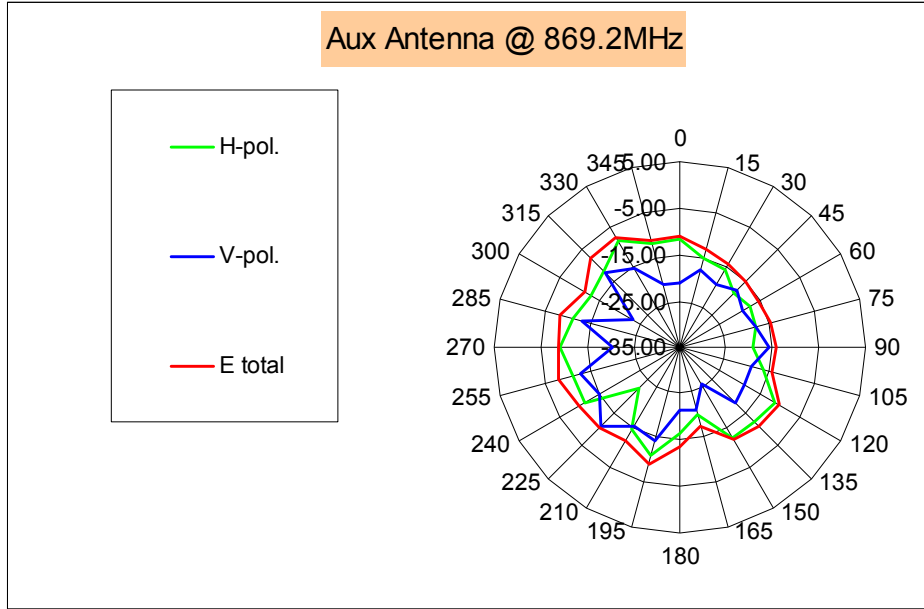
Frequency	880 MHz
Vertical peak gain (dBi)	-1.41
Horizontal peak gain (dBi)	-1.26

Main antenna: 894 MHz(Tablet)



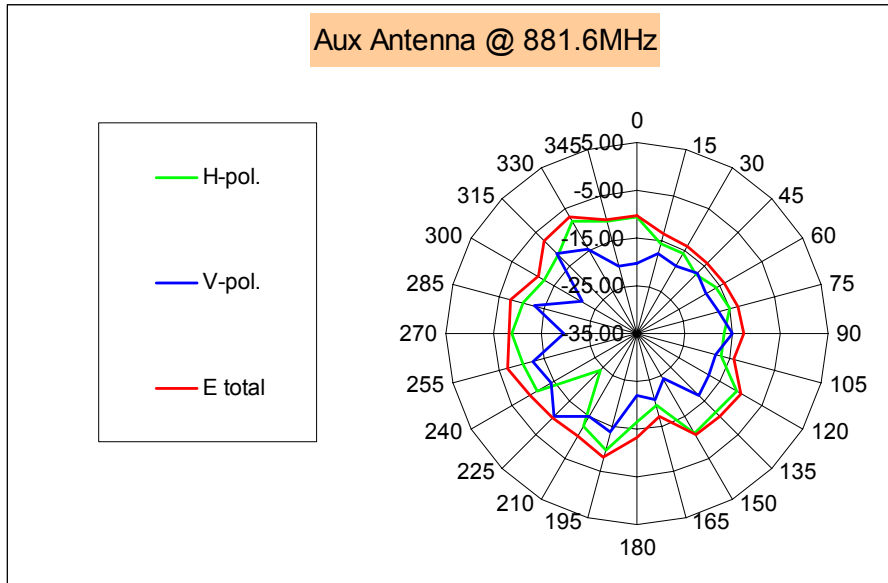
Frequency	849 MHz
Vertical peak gain (dBi)	-1.59
Horizontal peak gain (dBi)	-1.38

Aux antenna: 869.2 MHz(Tablet)



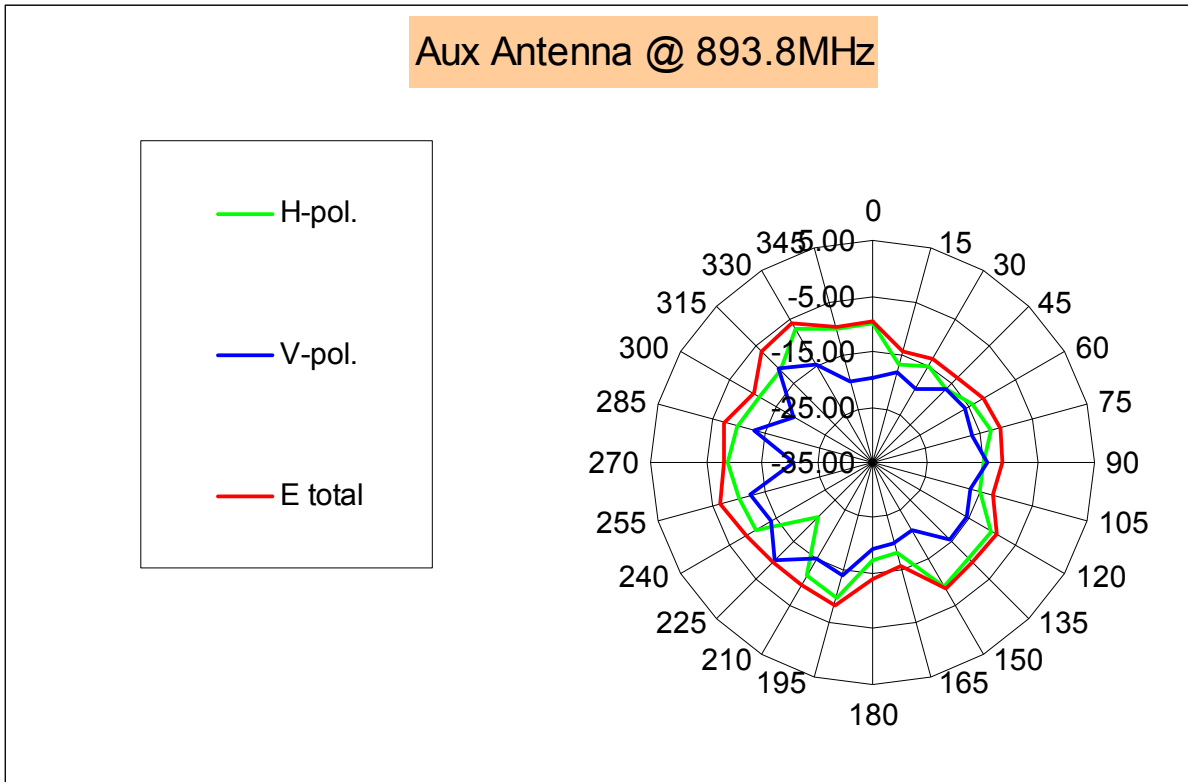
Center Frequency	869.2 MHz
Horizontal (dBi) peak	-8.67
Vertical (dBi) peak	-11.09

Aux antenna: 881.6 MHz(Tablet)



Center Frequency	881.6 MHz
Horizontal (dBi) peak	-7.81
Vertical (dBi) peak	-10.52

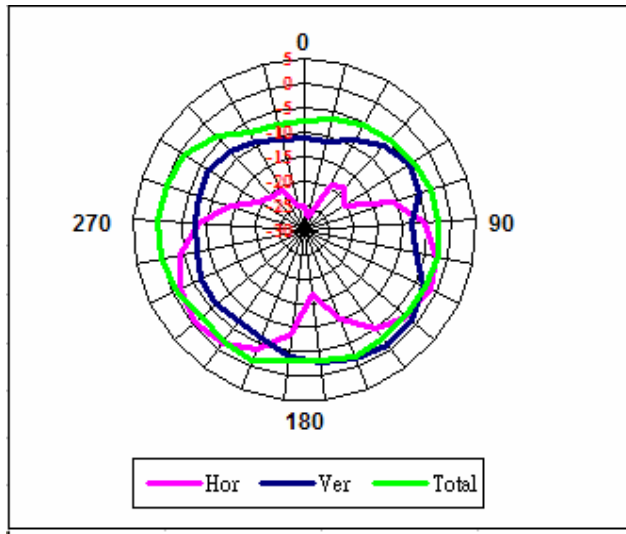
Aux antenna: 893.8 MHz(Tablet)



Center Frequency	893.8 MHz
Horizontal (dBi) peak	-7.08
Vertical (dBi) peak	-10.29

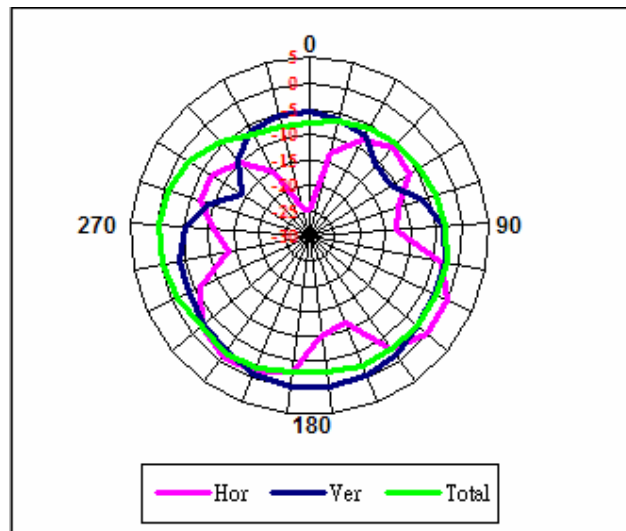
900MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

Main antenna: 880 MHz(Laptop)



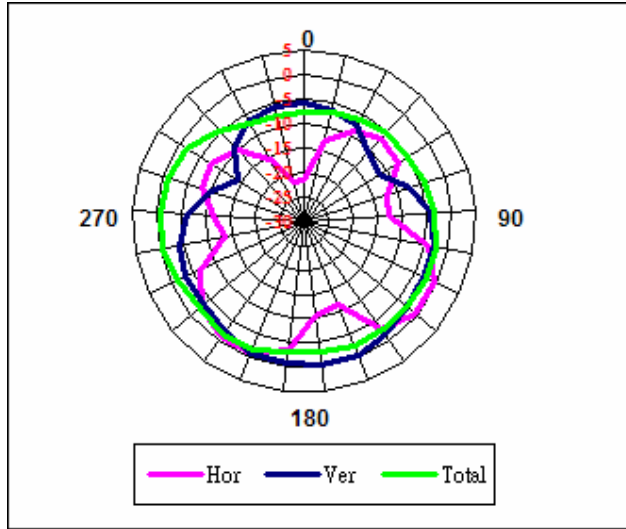
Frequency	880 MHz
Vertical peak gain (dBi)	0.13
Horizontal peak gain (dBi)	-0.61

Main antenna: 894 MHz(Laptop)



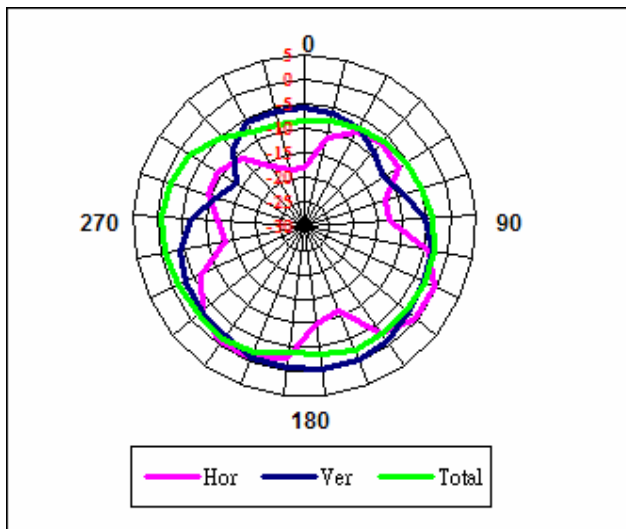
Frequency	894 MHz
Vertical peak gain (dBi)	-0.14
Horizontal peak gain (dBi)	-0.25

Main antenna: 900 MHz(Laptop)



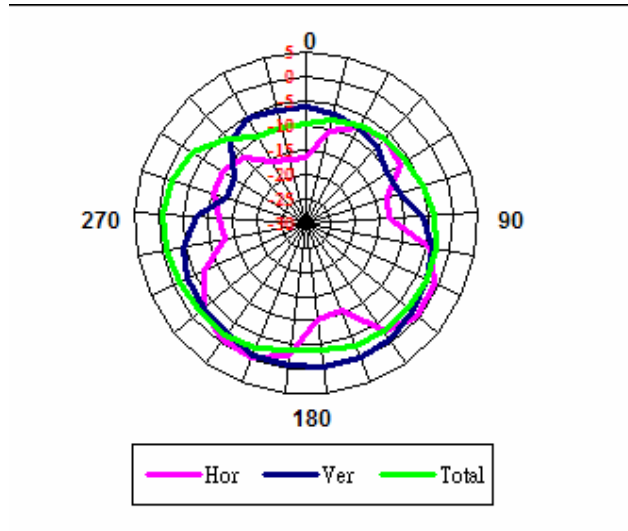
Frequency	900 MHz
Vertical peak gain (dBi)	-0.44
Horizontal peak gain (dBi)	-0.53

Main antenna: 915 MHz(Laptop)



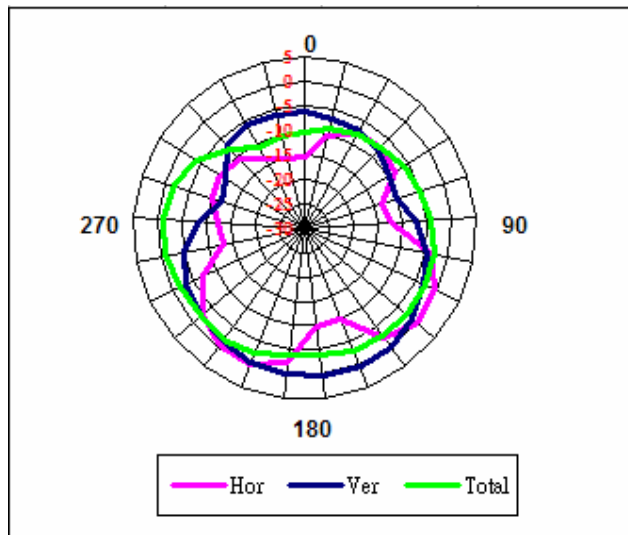
Frequency	915 MHz
Vertical peak gain (dBi)	-0.30
Horizontal peak gain (dBi)	-0.53

Main antenna: 925 MHz(Laptop)



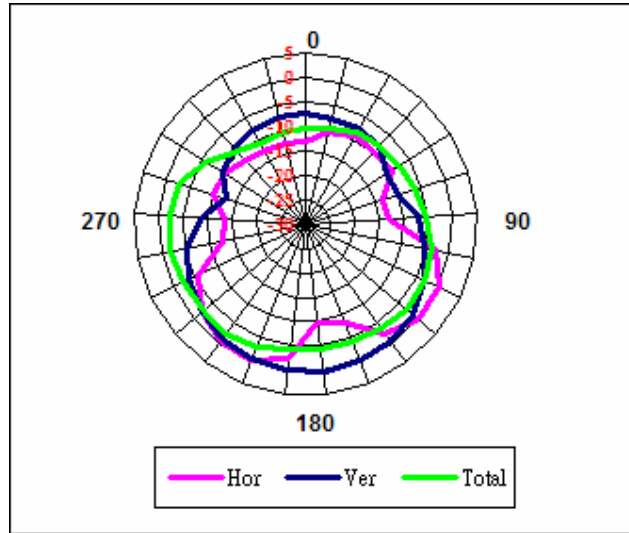
Frequency	925 MHz
Vertical peak gain (dBi)	-0.49
Horizontal peak gain (dBi)	-0.51

Main antenna: 940 MHz(Laptop)



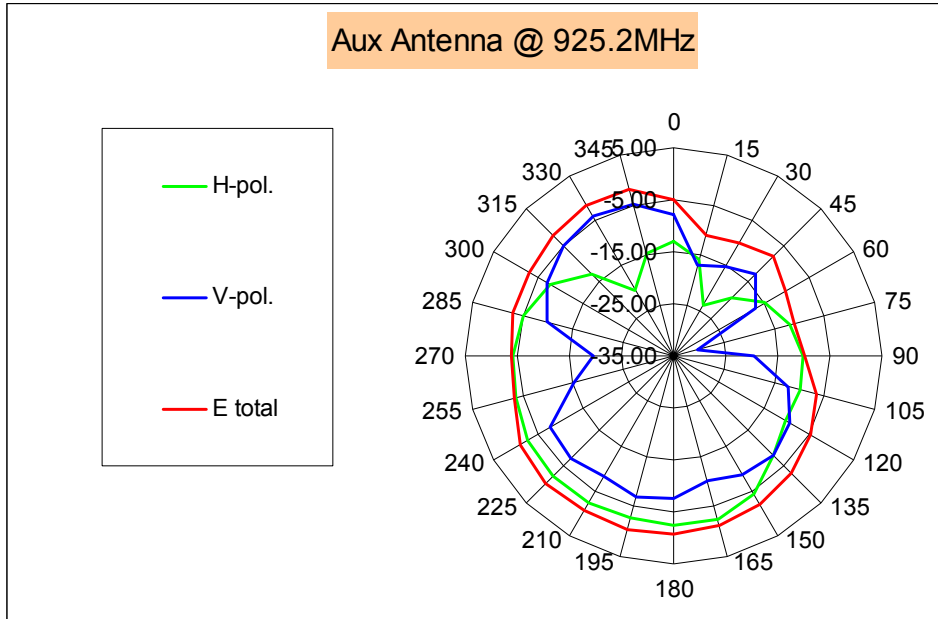
Frequency	940 MHz
Vertical peak gain (dBi)	0.06
Horizontal peak gain (dBi)	-0.33

Main antenna: 960 MHz(Laptop)



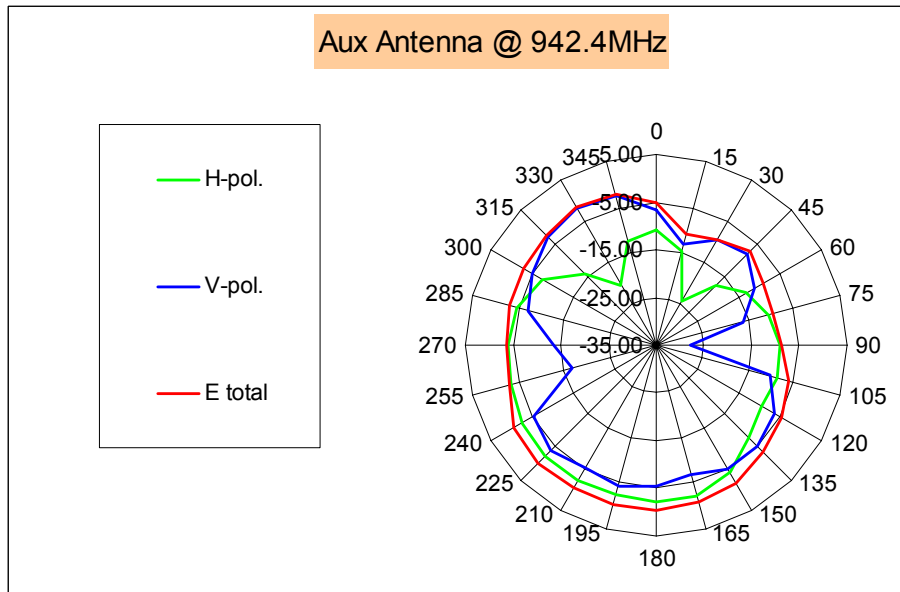
Frequency	960 MHz
Vertical peak gain (dBi)	-0.02
Horizontal peak gain (dBi)	-0.17

Aux antenna: 925.2 MHz(Laptop)



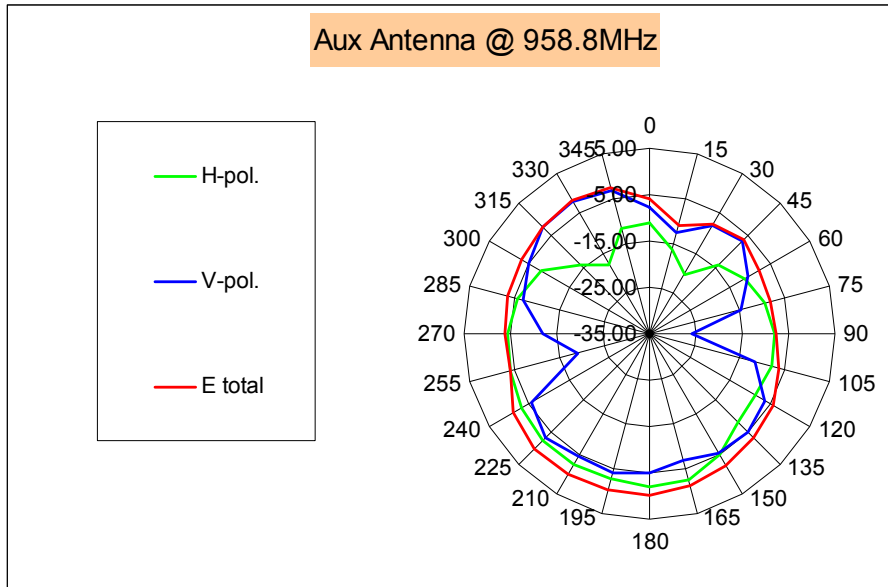
Center Frequency	925.2 MHz
Horizontal (dBi) peak	-2.26
Vertical (dBi) peak	-1.66

Aux antenna: 942.4 MHz(Laptop)



Center Frequency	942.4 MHz
Horizontal (dBi) peak	-2.02
Vertical (dBi) peak	-1.76

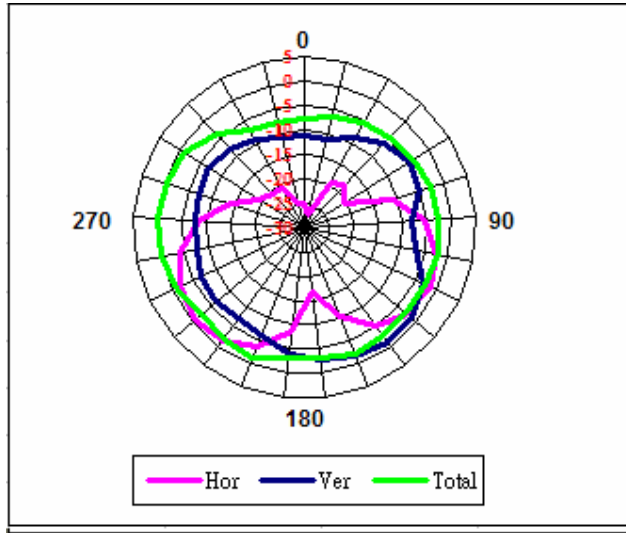
Aux antenna: 958.8 MHz(Laptop)



Center Frequency	958.8 MHz
Horizontal (dBi) peak	-2.03
Vertical (dBi) peak	-1.84

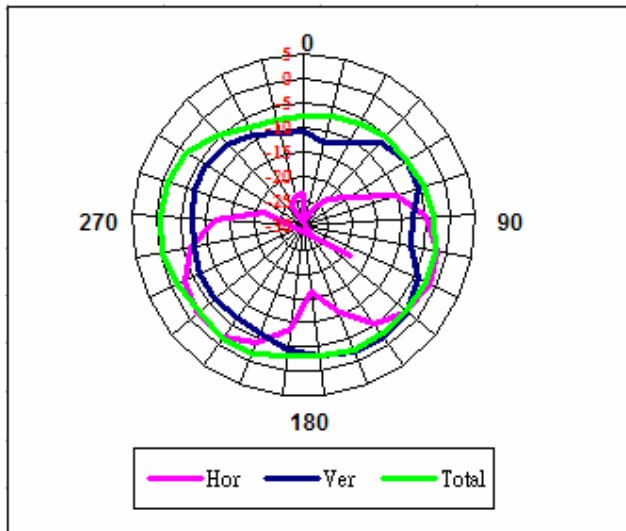
900MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

Main antenna: 880 MHz(Tablet)



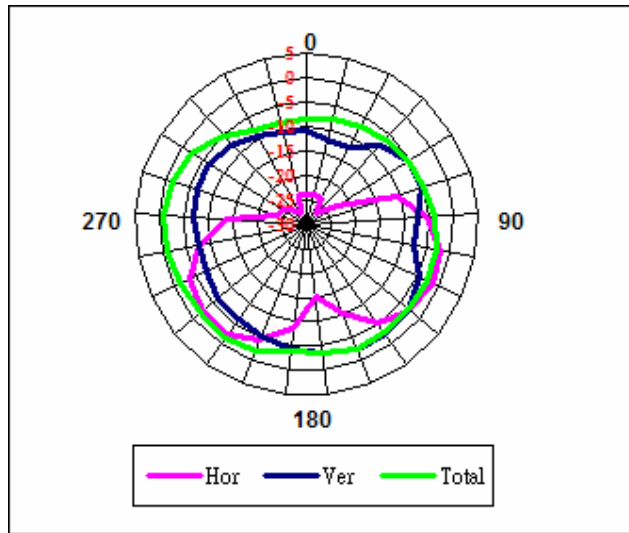
Frequency	880 MHz
Vertical peak gain (dBi)	-1.41
Horizontal peak gain (dBi)	-1.26

Main antenna: 900 MHz(Tablet)



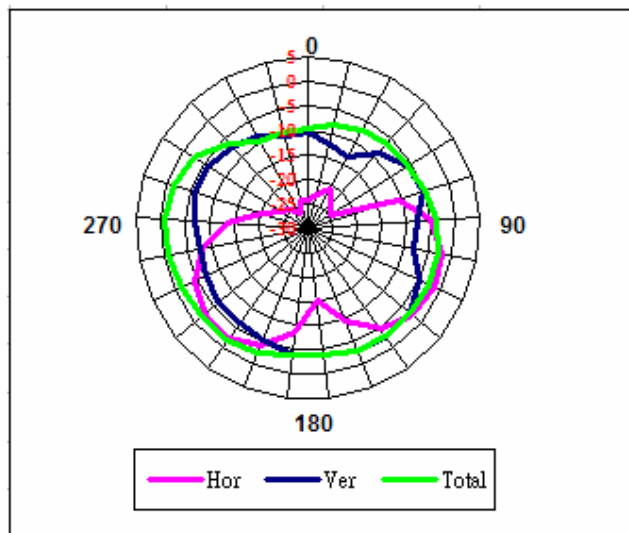
Frequency	900 MHz
Vertical peak gain (dBi)	-1.68
Horizontal peak gain (dBi)	-1.70

Main antenna: 915 MHz(Tablet)



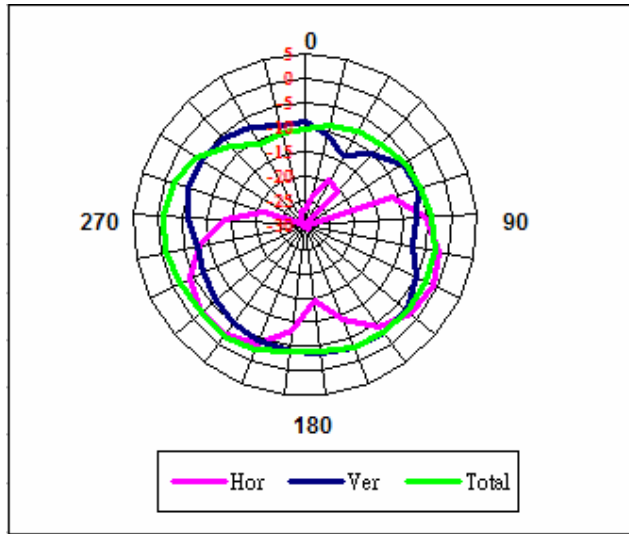
Frequency	915 MHz
Vertical peak gain (dBi)	-1.89
Horizontal peak gain (dBi)	-1.63

Main antenna: 925 MHz(Tablet)



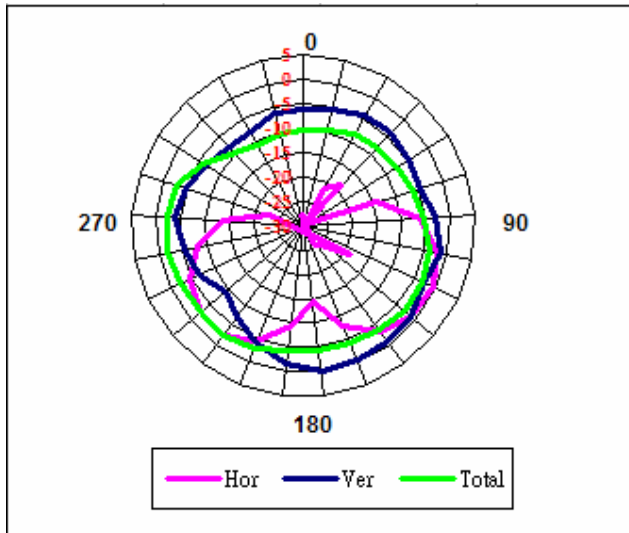
Frequency	925MHz
Vertical peak gain (dBi)	-2.12
Horizontal peak gain (dBi)	-1.36

Main antenna: 940 MHz(Tablet)



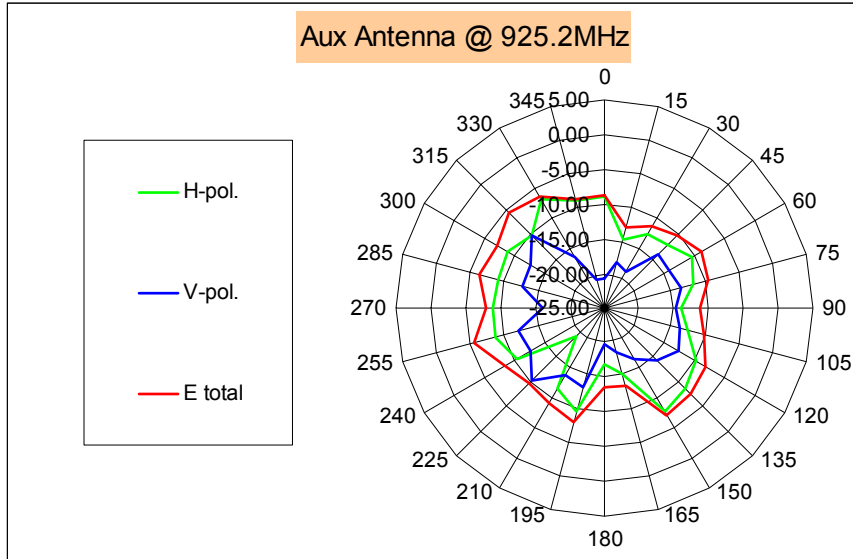
Frequency	940MHz
Vertical peak gain (dBi)	-1.89
Horizontal peak gain (dBi)	-1.63

Main antenna: 960 MHz(Tablet)



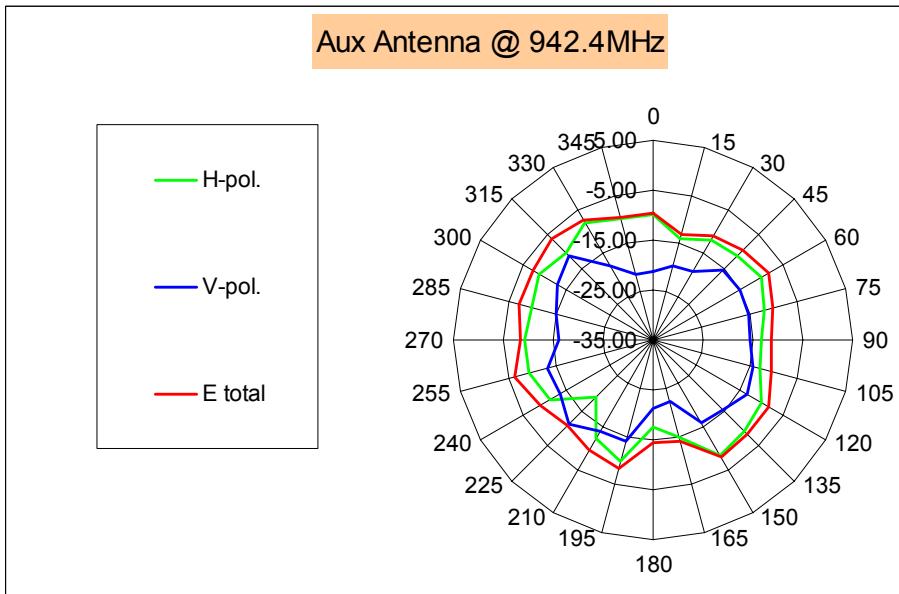
Frequency	960 MHz
Vertical peak gain (dBi)	-1.89
Horizontal peak gain (dBi)	-1.63

Aux antenna: 925.2 MHz(Tablet)



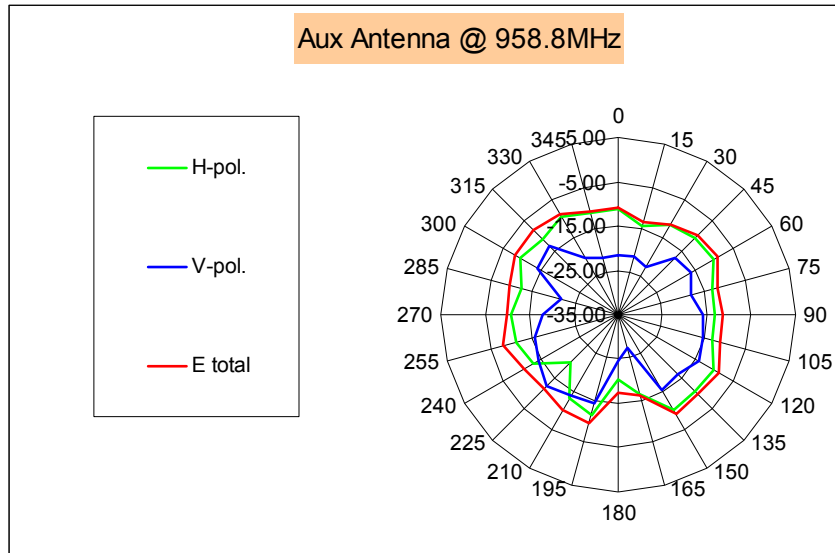
Center Frequency	925.2 MHz
Horizontal (dBi) peak	-7.07
Vertical (dBi) peak	-10.14

Aux antenna: 942.4 MHz(Tablet)



Center Frequency	942.4 MHz
Horizontal (dBi) peak	-7.89
Vertical (dBi) peak	-11.11

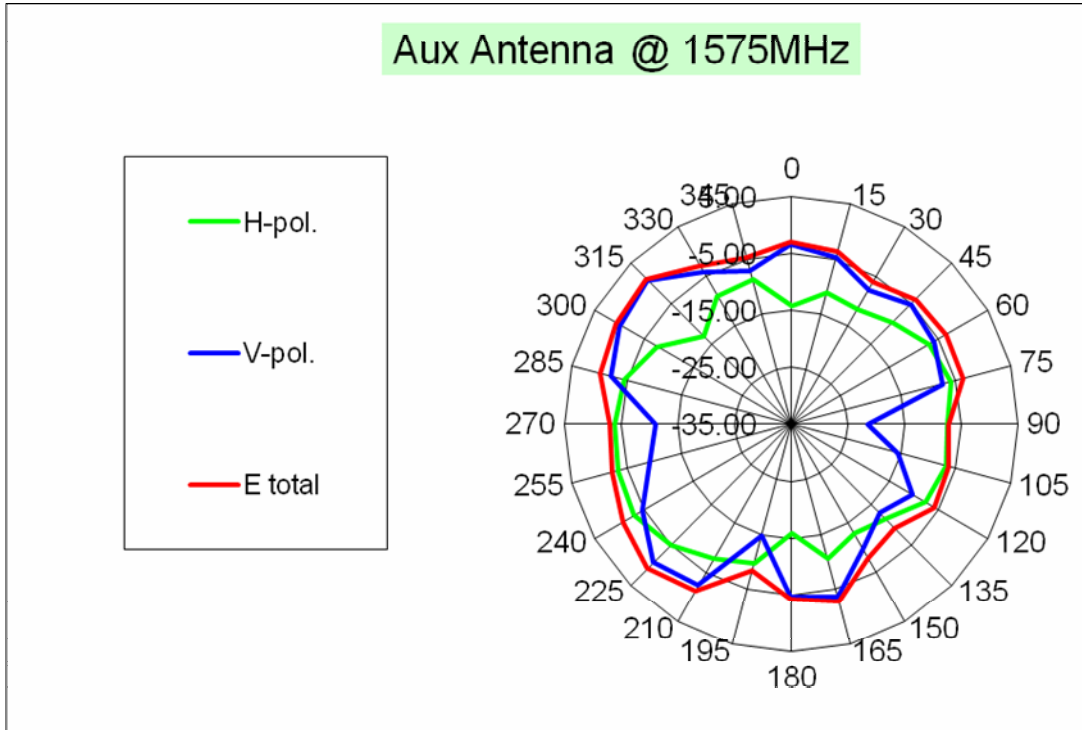
Aux antenna: 958.8 MHz(Tablet)



Center Frequency	958.8 MHz
Horizontal (dBi) peak	-9.33
Vertical (dBi) peak	-12.11

1500MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

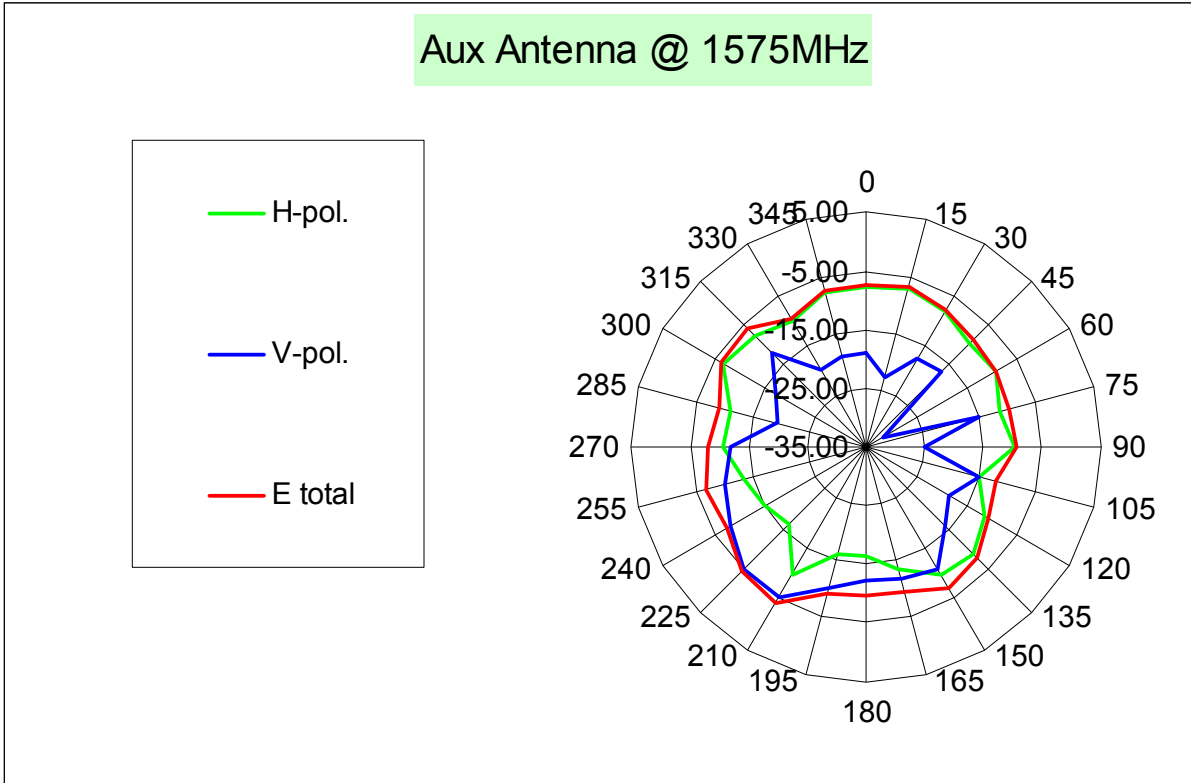
Aux antenna: 1575 MHz(Laptop)



Center Frequency	1575 MHz
Horizontal (dBi) peak	-3.00
Vertical (dBi) peak	0.91

1500MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

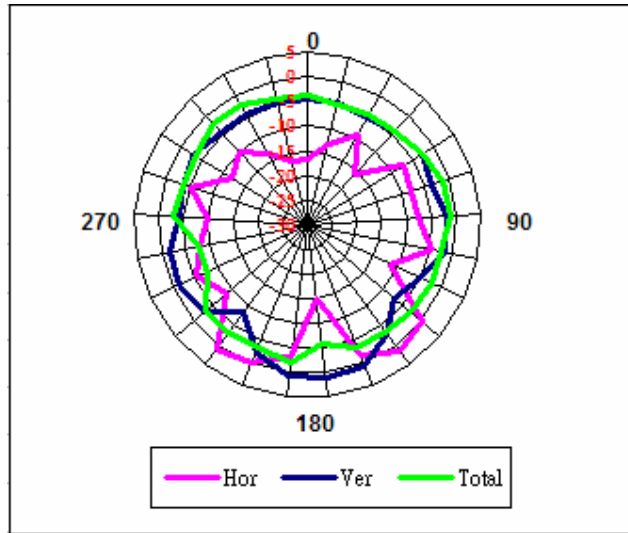
Aux antenna: 1575 MHz(Tablet)



Center Frequency	1575 MHz
Horizontal (dBi) peak	-6.90
Vertical (dBi) peak	-5.54

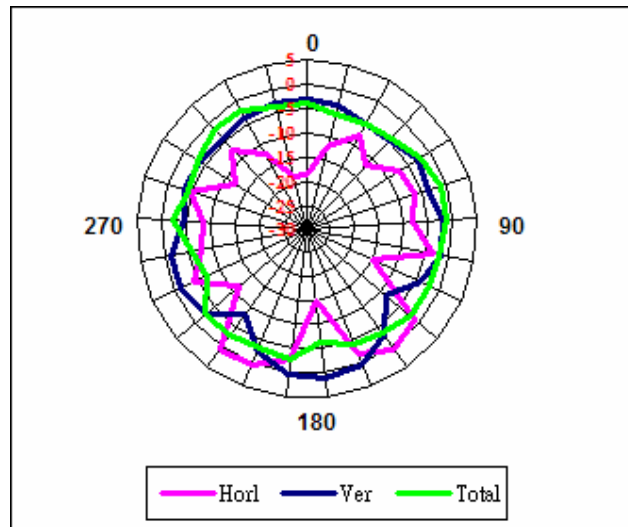
1800MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

Main antenna: 1710 MHz(Laptop)



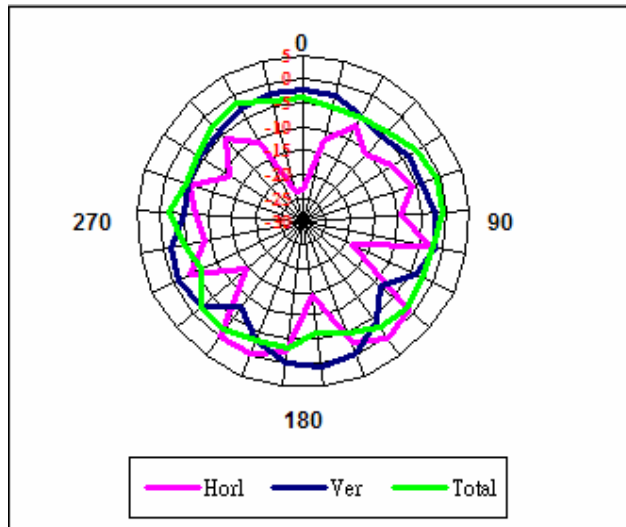
Frequency	1710 MHz
Vertical peak gain (dBi)	0.63
Horizontal peak gain (dBi)	1.10

Main antenna: 1750 MHz(Laptop)



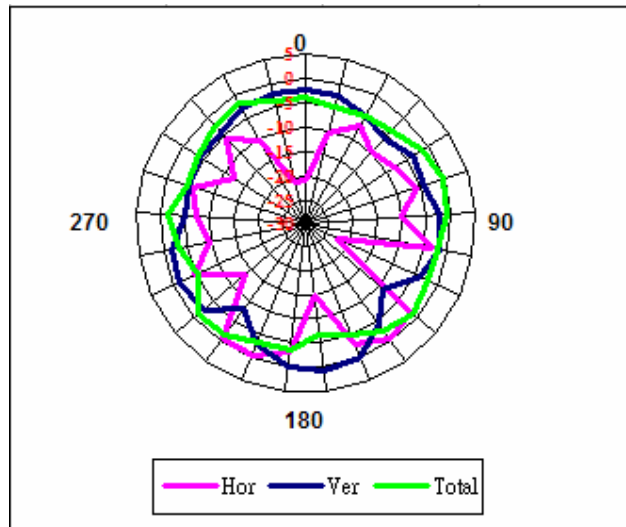
Frequency	1750 MHz
Vertical peak gain (dBi)	1.04
Horizontal peak gain (dBi)	0.78

Main antenna: 1785 MHz(Laptop)



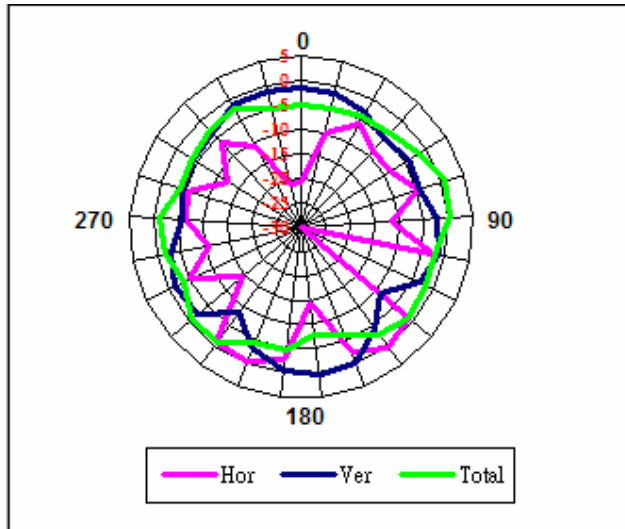
Frequency	1785 MHz
Vertical peak gain (dBi)	1.10
Horizontal peak gain (dBi)	0.18

Main antenna: 1805MHz(Laptop)



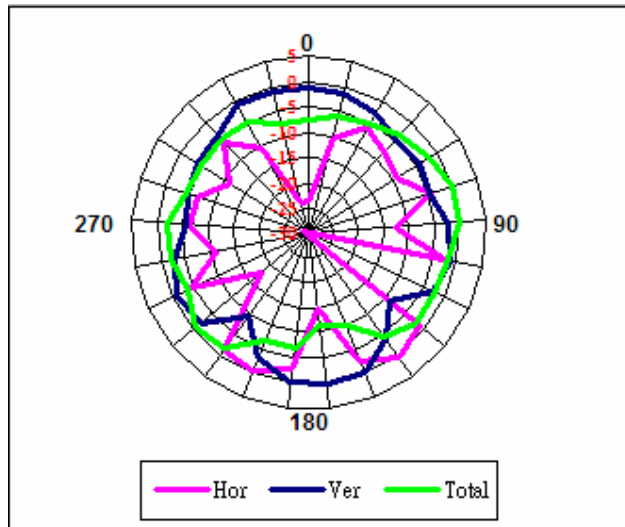
Frequency	1805 MHz
Vertical peak gain (dBi)	0.65
Horizontal peak gain (dBi)	-0.26

Main antenna: 1840 MHz(Laptop)



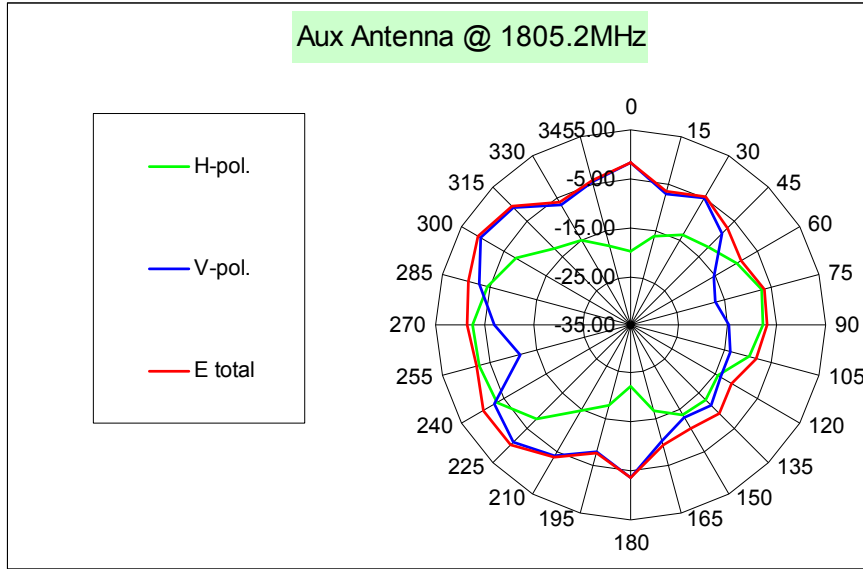
Frequency	1840 MHz
Vertical peak gain (dBi)	0.23
Horizontal peak gain (dBi)	-0.08

Main antenna: 1880 MHz(Laptop)



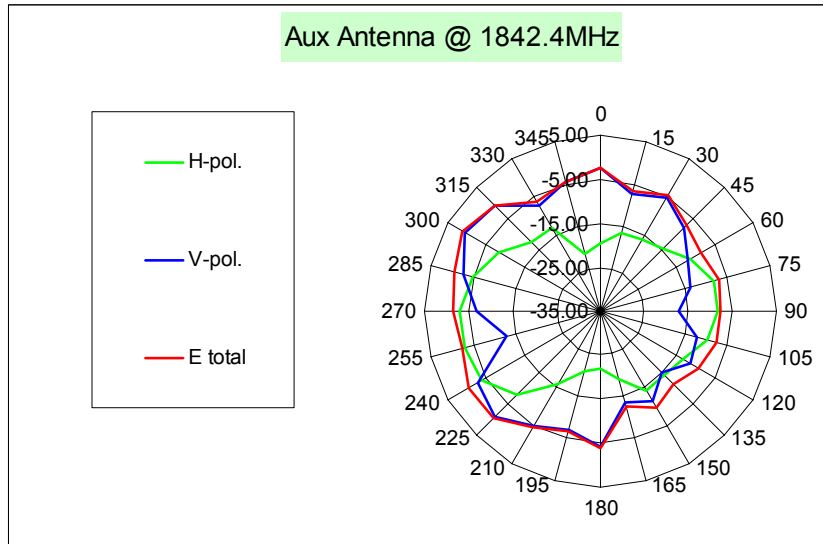
Frequency	1880 MHz
Vertical peak gain (dBi)	0.33
Horizontal peak gain (dBi)	-0.01

Aux antenna: 1805.2 MHz(Laptop)



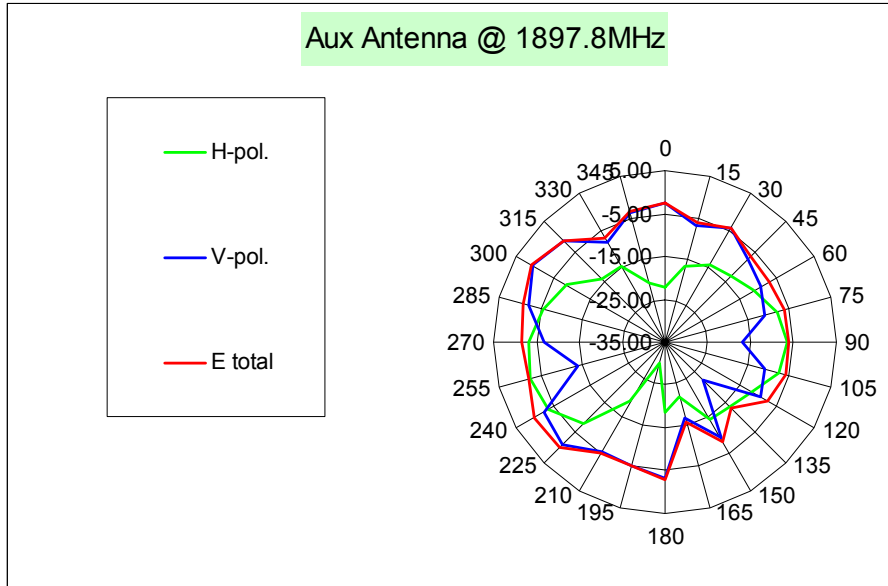
Center Frequency	1805.2 MHz
Horizontal (dBi) peak	-2.64
Vertical (dBi) peak	0.59

Aux antenna: 1842.4 MHz(Laptop)



Center Frequency	1842.4 MHz
Horizontal (dBi) peak	-2.97
Vertical (dBi) peak	0.54

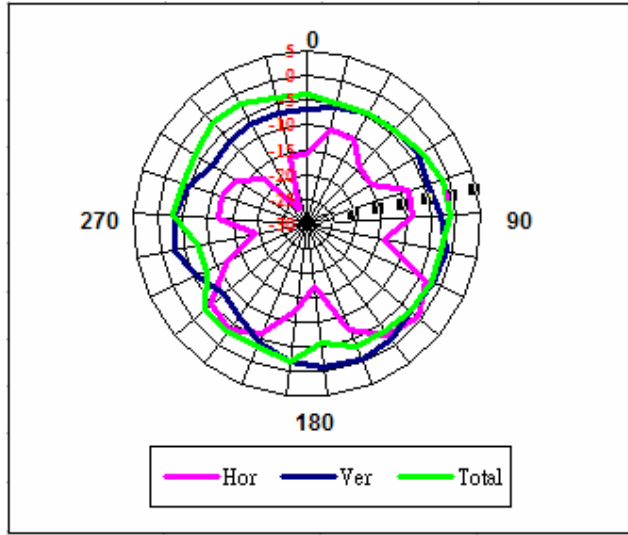
Aux antenna: 1897.8 MHz(Laptop)



Center Frequency	1897.8 MHz
Horizontal (dBi) peak	-2.62
Vertical (dBi) peak	0.59

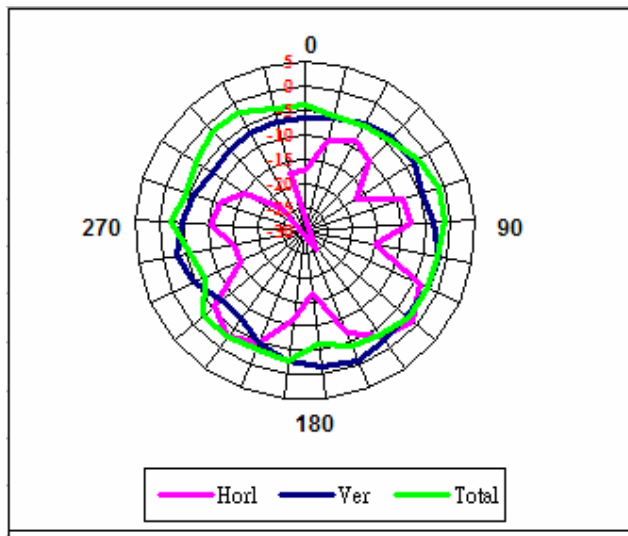
1800MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

Main antenna: 1710 MHz(Tablet)



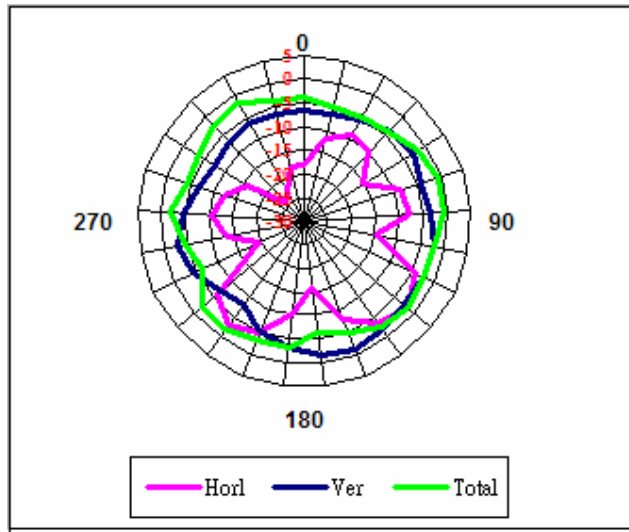
Frequency	1710 MHz
Vertical peak gain (dBi)	-0.40
Horizontal peak gain (dBi)	-0.89

Main antenna: 1750 MHz(Tablet)



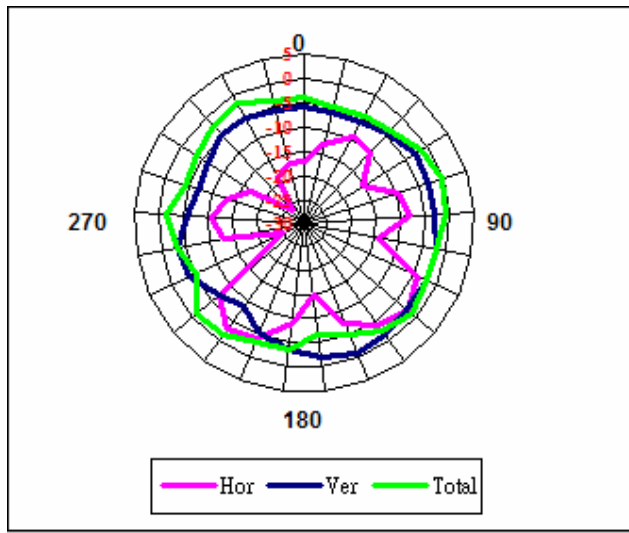
Frequency	1750 MHz
Vertical peak gain (dBi)	-0.61
Horizontal peak gain (dBi)	-1.39

Main antenna: 1785 MHz(Tablet)



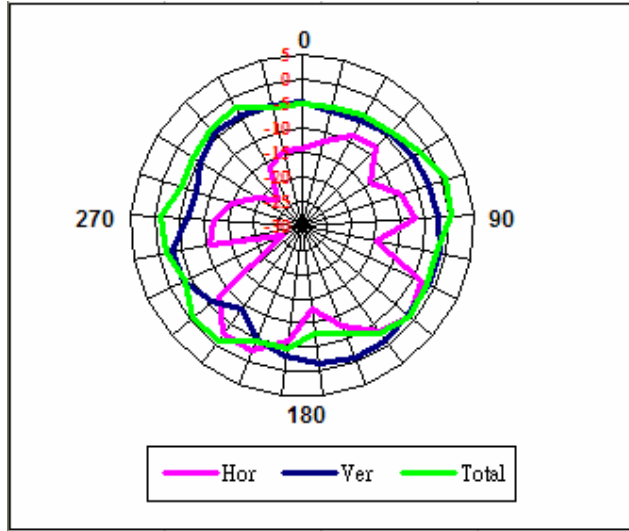
Frequency	1785 MHz
Vertical peak gain (dBi)	-1.29
Horizontal peak gain (dBi)	-1.83

Main antenna: 1805 MHz(Tablet)



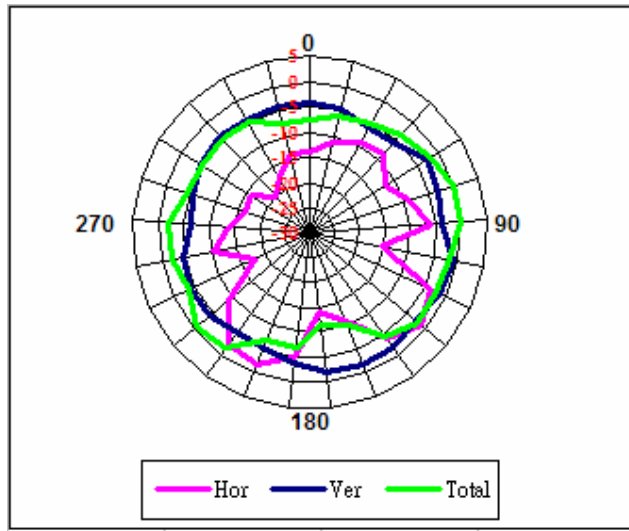
Frequency	1805 MHz
Vertical peak gain (dBi)	-1.37
Horizontal peak gain (dBi)	-2.01

Main antenna: 1840 MHz(Tablet)



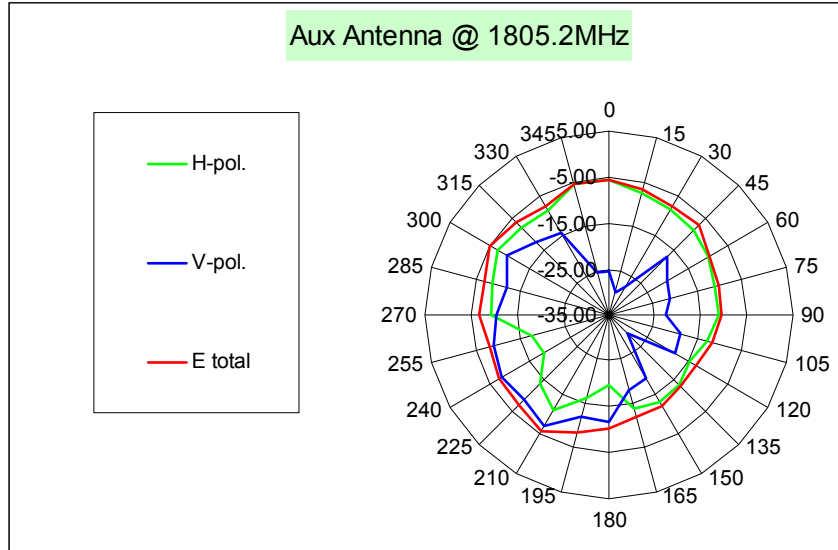
Frequency	1840 MHz
Vertical peak gain (dBi)	-1.32
Horizontal peak gain (dBi)	-1.50

Main antenna: 1880 MHz(Tablet)



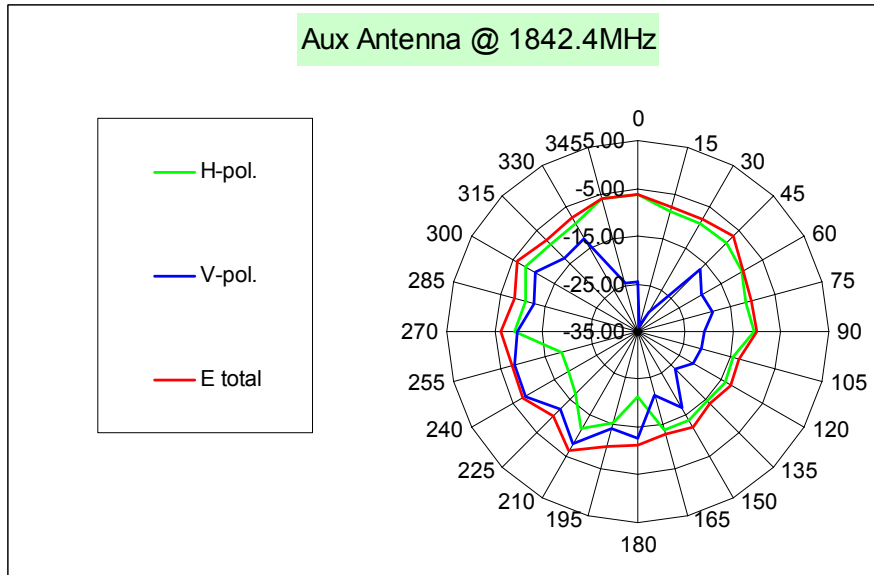
Frequency	1880 MHz
Vertical peak gain (dBi)	-1.23
Horizontal peak gain (dBi)	-1.29

Aux antenna: 1805.2 MHz(Tablet)



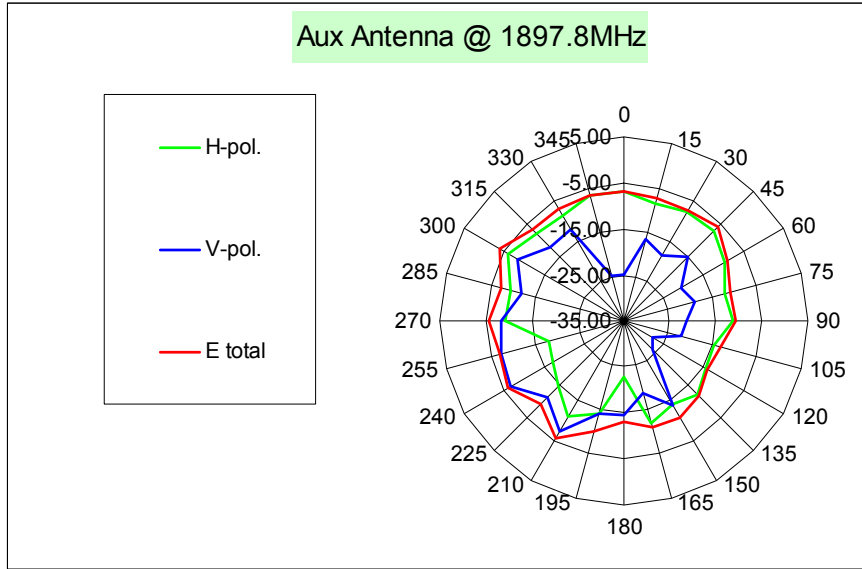
Center Frequency	1805.2 MHz
Horizontal (dBi) peak	-5.68
Vertical (dBi) peak	-10.52

Aux antenna: 1842.4 MHz(Tablet)



Center Frequency	1842.4 MHz
Horizontal (dBi) peak	-6.43
Vertical (dBi) peak	-7.61

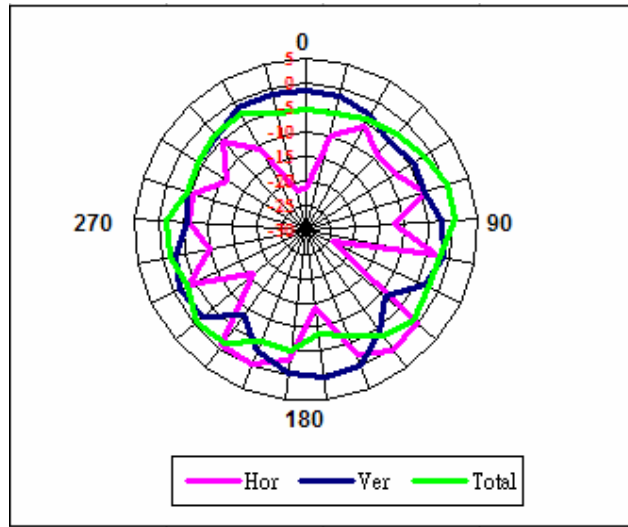
Aux antenna: 1897.8 MHz(Tablet)



Center Frequency	1897.8 MHz
Horizontal (dBi) peak	-6.09
Vertical (dBi) peak	-6.66

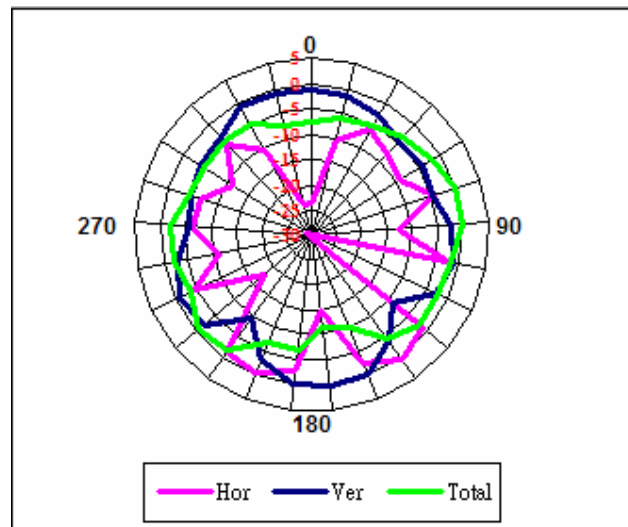
1900MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

Main antenna: 1850 MHz(Laptop)



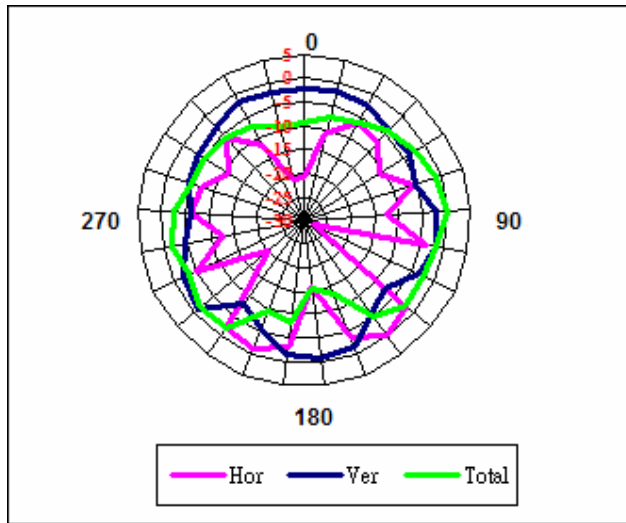
Frequency	1850 MHz
Vertical peak gain (dBi)	0.13
Horizontal peak gain (dBi)	0.23

Main antenna: 1880 MHz(Laptop)



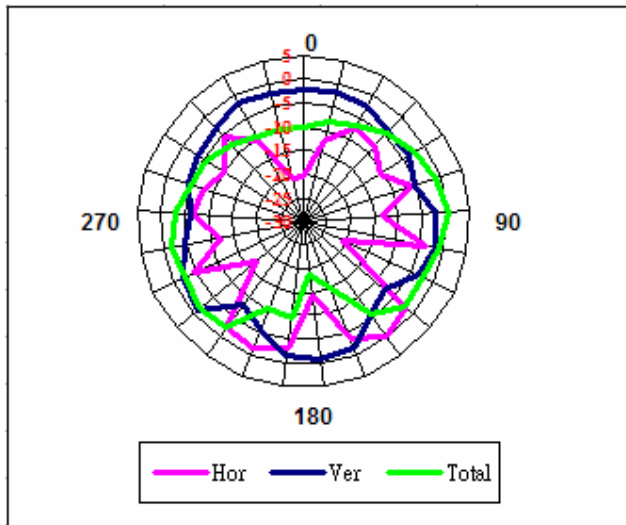
Frequency	1880 MHz
Vertical peak gain (dBi)	0.33
Horizontal peak gain (dBi)	-0.01

Main antenna: 1910 MHz(Laptop)



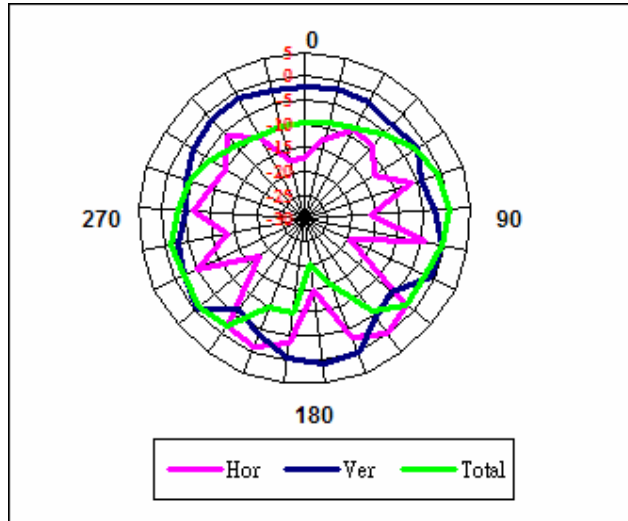
Frequency	1910 MHz
Vertical peak gain (dBi)	0.25
Horizontal peak gain (dBi)	-0.68

Main antenna: 1930 MHz(Laptop)



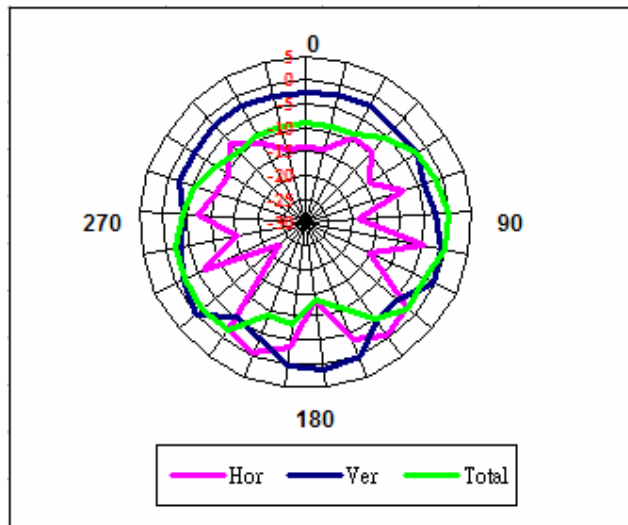
Frequency	1930 MHz
Vertical peak gain (dBi)	-0.73
Horizontal peak gain (dBi)	-0.52

Main antenna: 1960 MHz(Laptop)



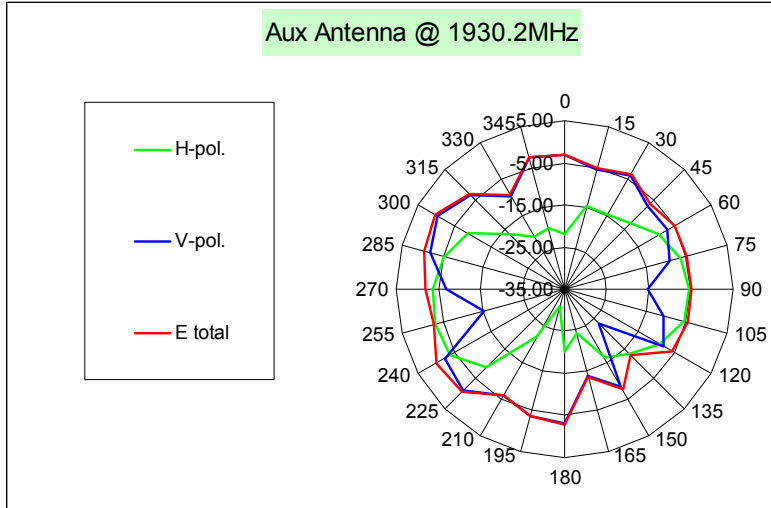
Frequency	1960 MHz
Vertical peak gain (dBi)	0.82
Horizontal peak gain (dBi)	-0.57

Main antenna: 1990 MHz(Laptop)



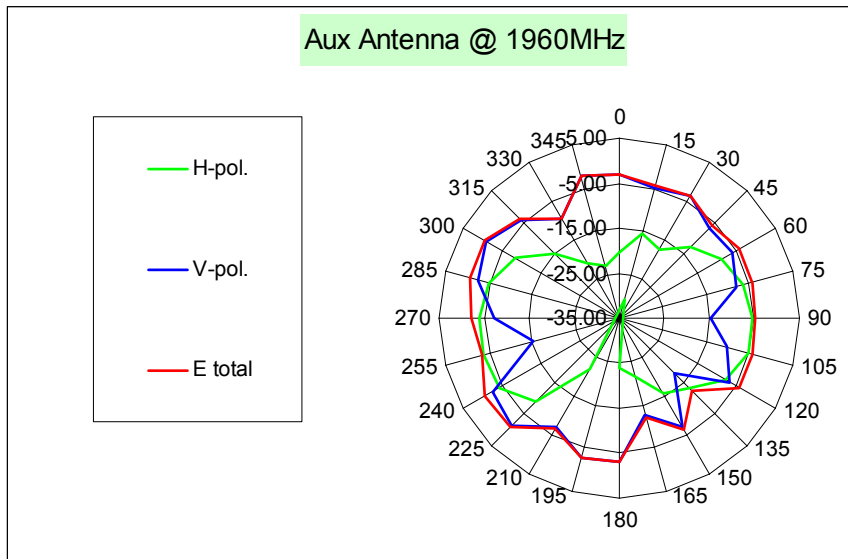
Frequency	1990 MHz
Vertical peak gain (dBi)	1.01
Horizontal peak gain (dBi)	-0.91

Aux antenna: 1930.2 MHz(Laptop)



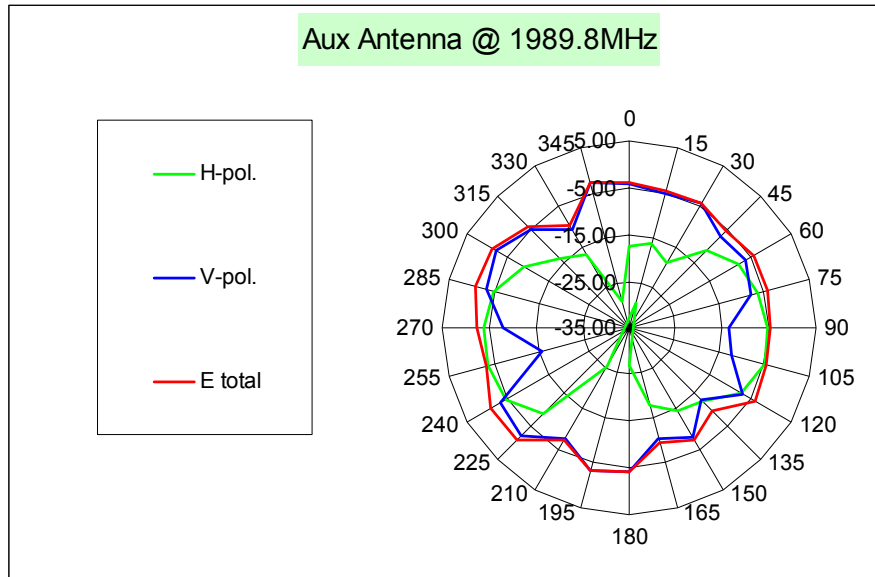
Center Frequency	1930.2 MHz
Horizontal (dBi) peak	-3.01
Vertical (dBi) peak	-0.26

Aux antenna: 1960 MHz(Laptop)



Center Frequency	1960 MHz
Horizontal (dBi) peak	-3.62
Vertical (dBi) peak	-1.03

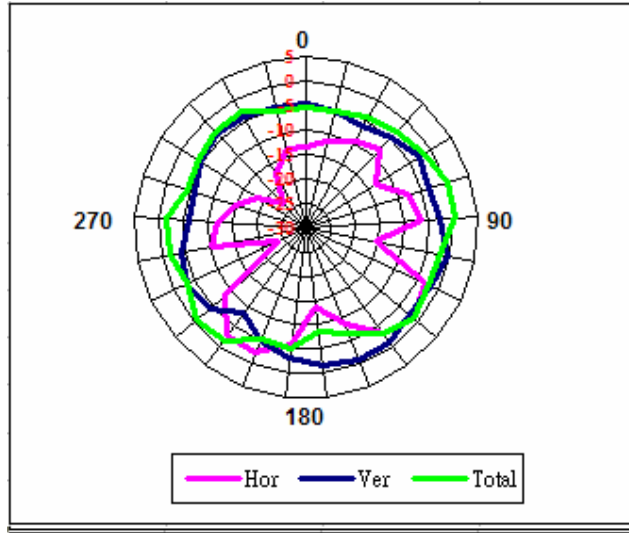
Aux antenna: 1989.8 MHz(Laptop)



Center Frequency	1989.8 MHz
Horizontal (dBi) peak	-3.65
Vertical (dBi) peak	-2.00

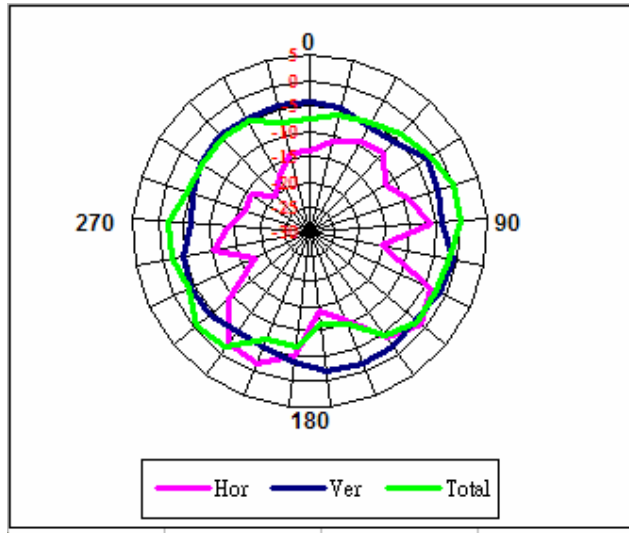
1900MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

Main antenna: 1850 MHz(Tablet)



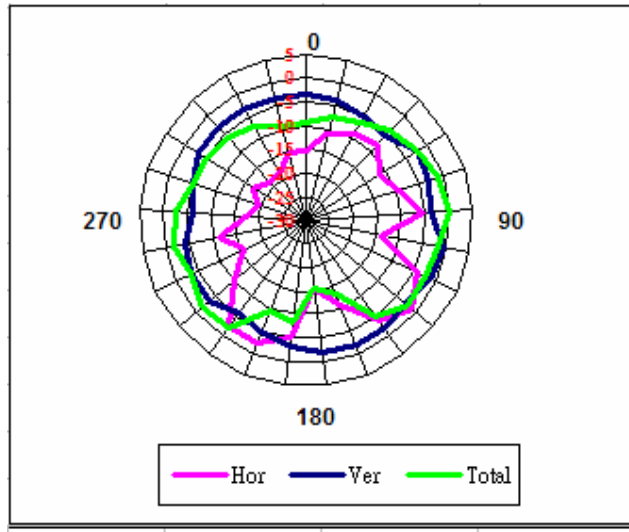
Frequency	1850 MHz
Vertical peak gain (dBi)	-1.27
Horizontal peak gain (dBi)	-1.41

Main antenna: 1880 MHz(Tablet)



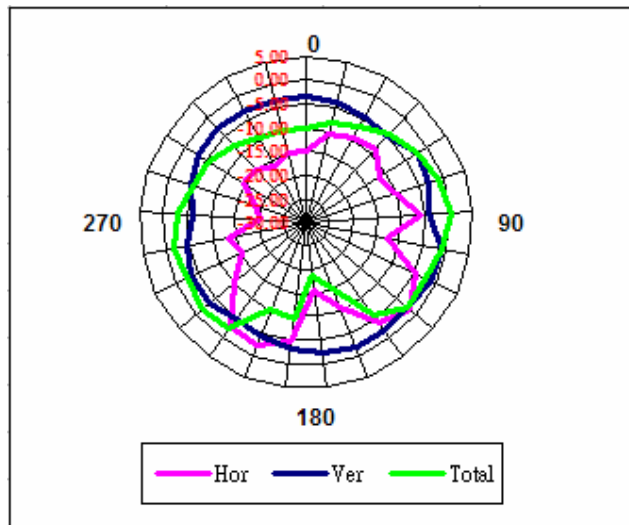
Frequency	1880 MHz
Vertical peak gain (dBi)	-1.23
Horizontal peak gain (dBi)	-1.29

Main antenna: 1910 MHz(Tablet)



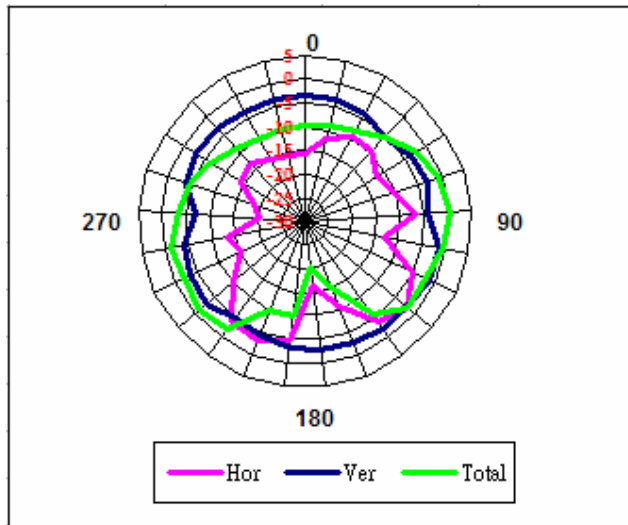
Frequency	1910 MHz
Vertical peak gain (dBi)	-1.34
Horizontal peak gain (dBi)	-1.39

Main antenna: 1930 MHz(Tablet)



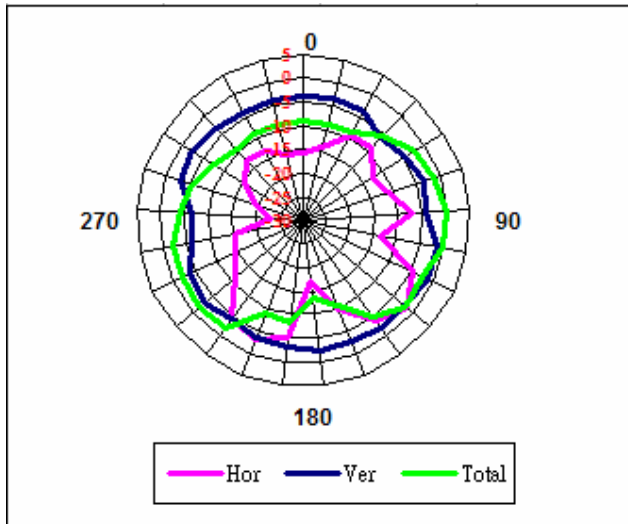
Frequency	1930 MHz
Vertical peak gain (dBi)	-1.17
Horizontal peak gain (dBi)	-1.53

Main antenna: 1960 MHz(Tablet)



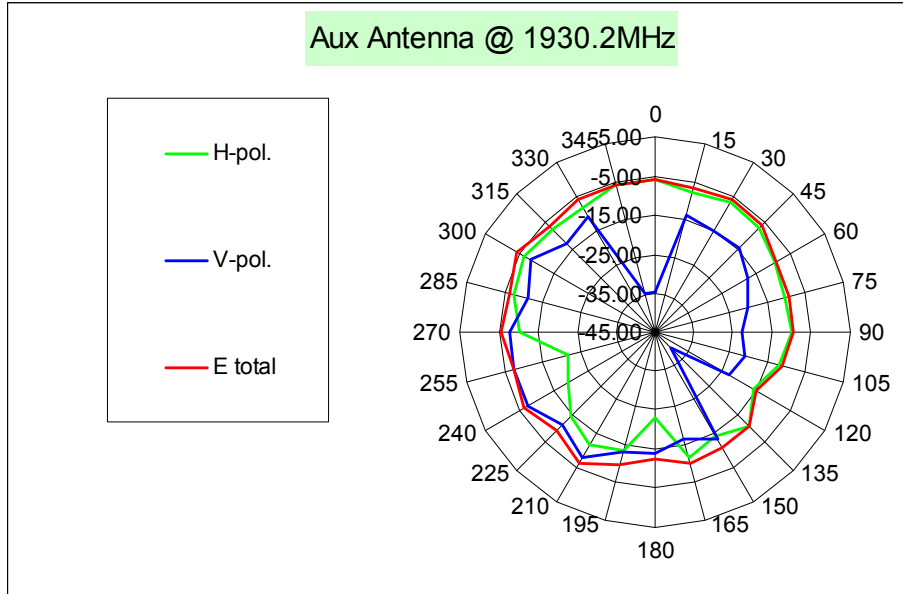
Frequency	1960 MHz
Vertical peak gain (dBi)	-1.12
Horizontal peak gain (dBi)	-1.97

Main antenna: 1990 MHz(Tablet)



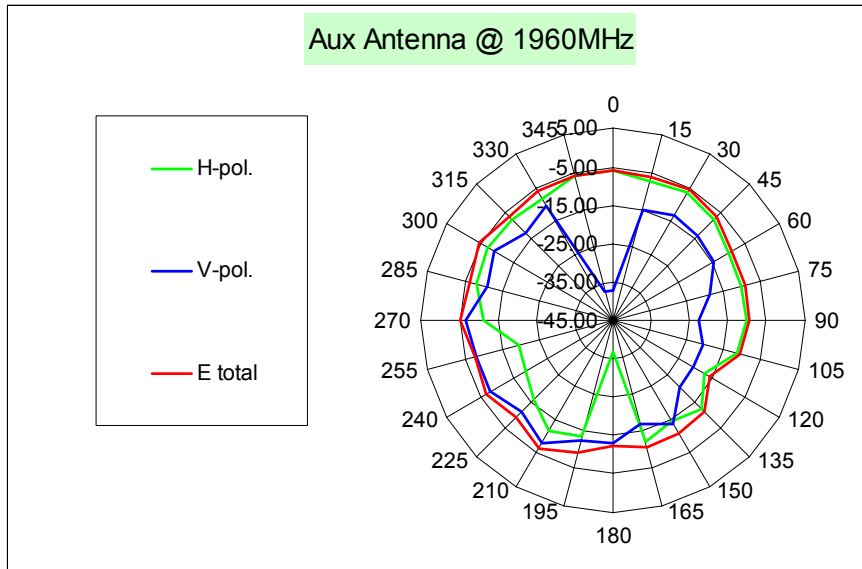
Frequency	1990 MHz
Vertical peak gain (dBi)	-1.46
Horizontal peak gain (dBi)	-1.75

Aux antenna: 1930.2 MHz(Tablet)



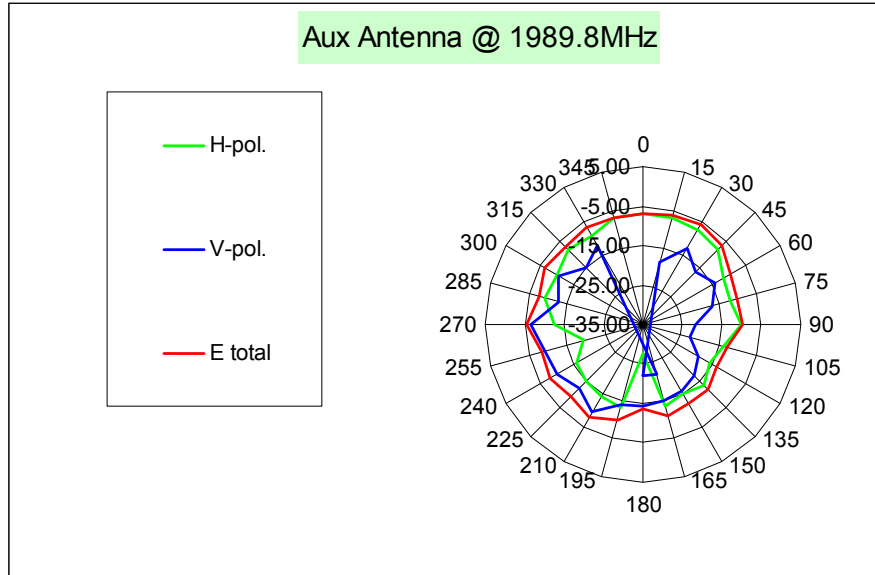
Center Frequency	1930.2 MHz
Horizontal (dBi) peak	-6.08
Vertical (dBi) peak	-7.23

Aux antenna: 1960 MHz(Tablet)



Center Frequency	1960 MHz
Horizontal (dBi) peak	-6.09
Vertical (dBi) peak	-6.76

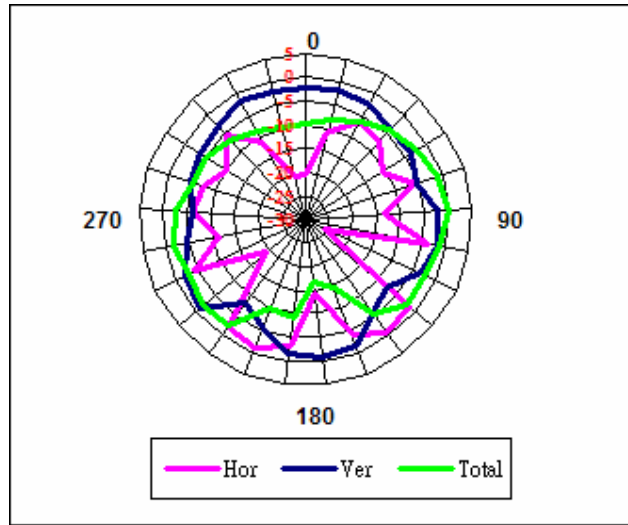
Aux antenna: 1989.8 MHz(Tablet)



Center Frequency	1989.8 MHz
Horizontal (dBi) peak	-6.89
Vertical (dBi) peak	-6.65

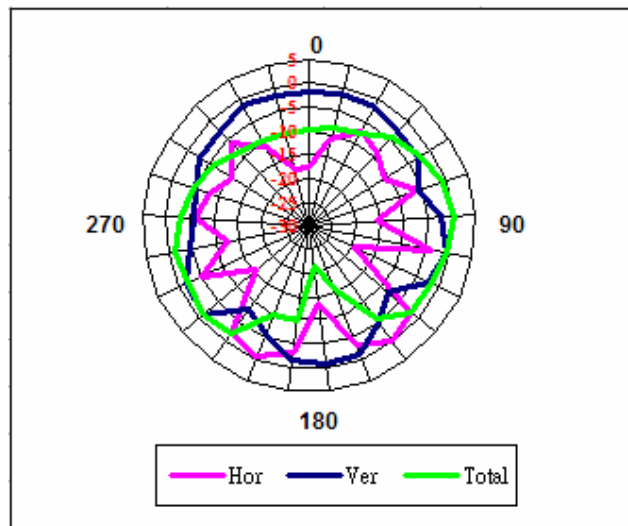
2100MHz radiation characteristic (Laptop mode with antenna positioned at 90-degree)

Main antenna: 1920 MHz(Laptop)



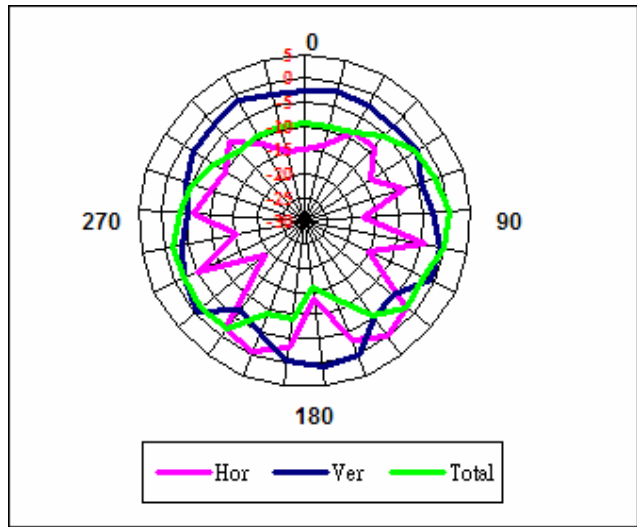
Frequency	1920 MHz
Vertical peak gain (dBi)	-0.94
Horizontal peak gain (dBi)	-0.80

Main antenna: 1950 MHz(Laptop)



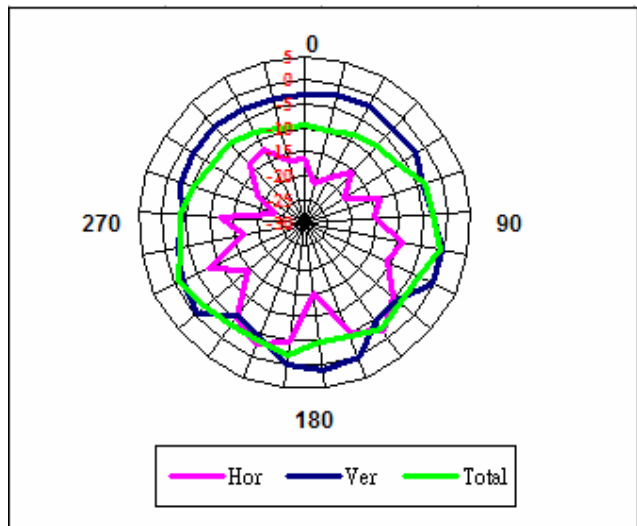
Frequency	1950 MHz
Vertical peak gain (dBi)	-0.28
Horizontal peak gain (dBi)	-0.55

Main antenna: 1980 MHz(Laptop)



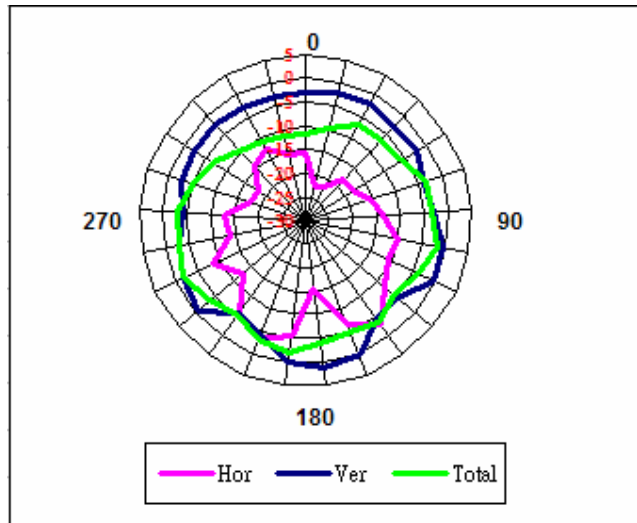
Frequency	1980 MHz
Vertical peak gain (dBi)	0.72
Horizontal peak gain (dBi)	-0.52

Main antenna: 2110 MHz(Laptop)



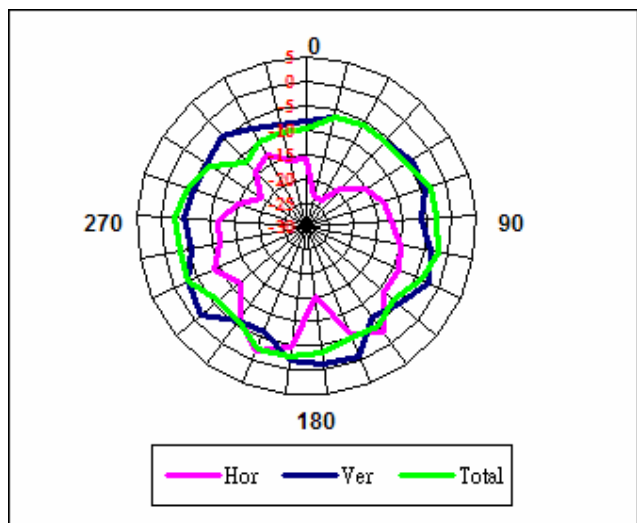
Frequency	2110 MHz
Vertical peak gain (dBi)	0.96
Horizontal peak gain (dBi)	-2.08

Main antenna: 2140 MHz(Laptop)



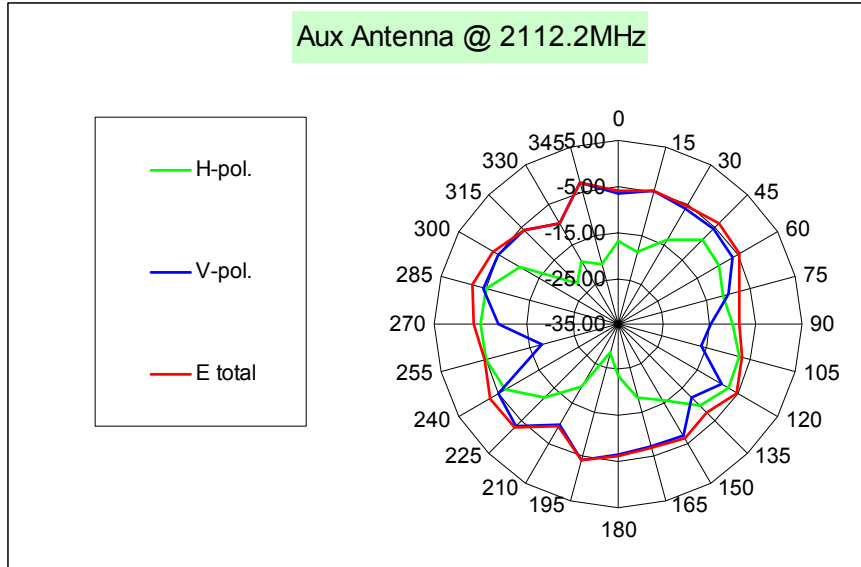
Frequency	2140 MHz
Vertical peak gain (dBi)	-0.39
Horizontal peak gain (dBi)	-3.33

Main antenna: 2170 MHz(Laptop)



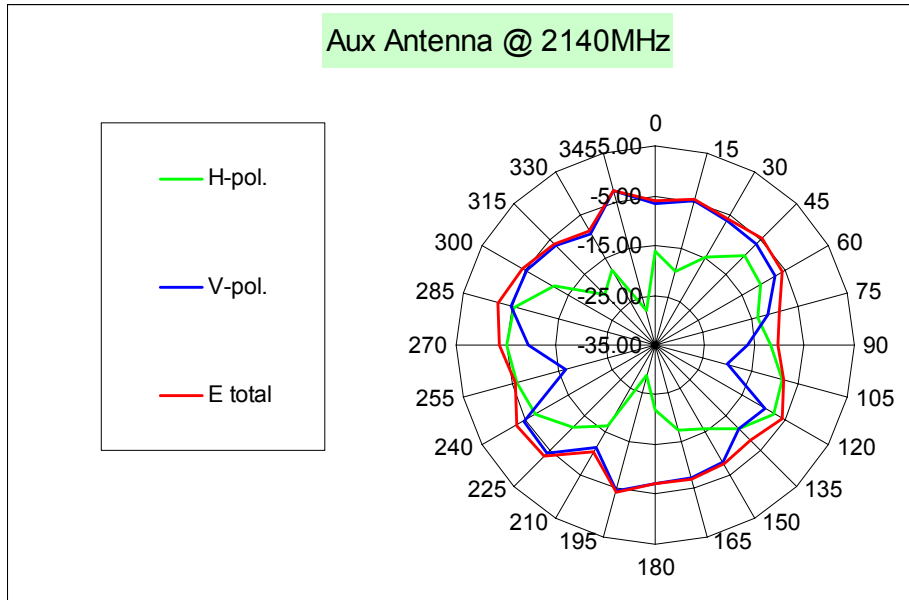
Frequency	2170 MHz
Vertical peak gain (dBi)	-1.03
Horizontal peak gain (dBi)	-2.56

Aux antenna: 2112.2 MHz(Laptop)



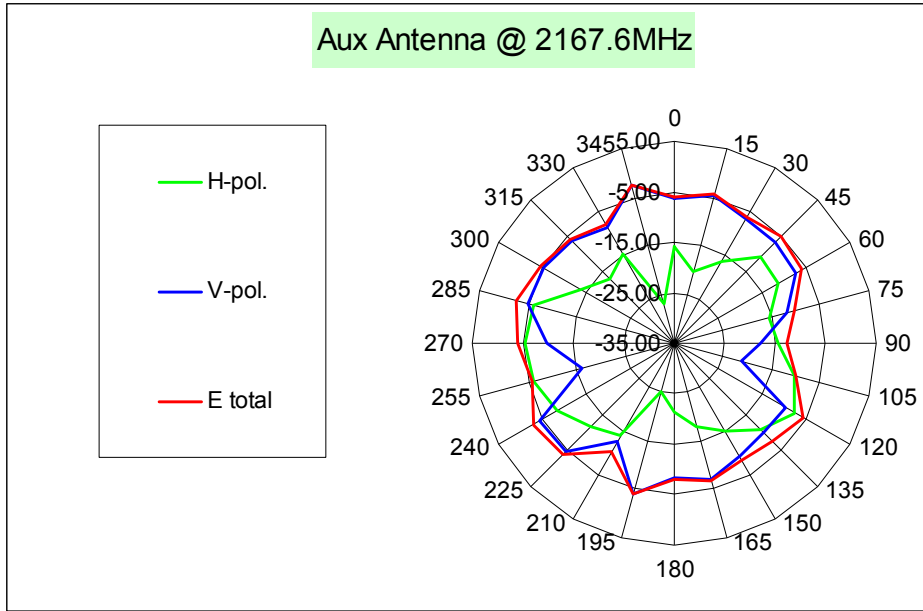
Center Frequency	2112.2 MHz
Horizontal (dBi) peak	-5.06
Vertical (dBi) peak	-2.97

Aux antenna: 2140 MHz(Laptop)



Center Frequency	2140 MHz
Horizontal (dBi) peak	-5.19
Vertical (dBi) peak	-2.86

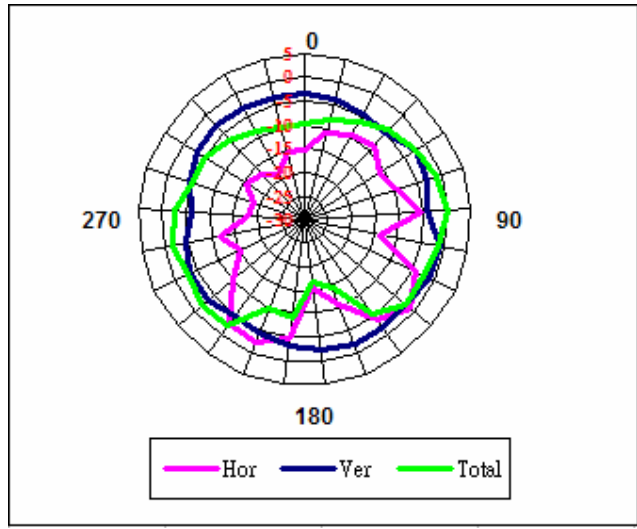
Aux antenna: 2167.6MHz(Laptop)



Center Frequency	2167.6 MHz
Horizontal (dBi) peak	-5.40
Vertical (dBi) peak	-2.59

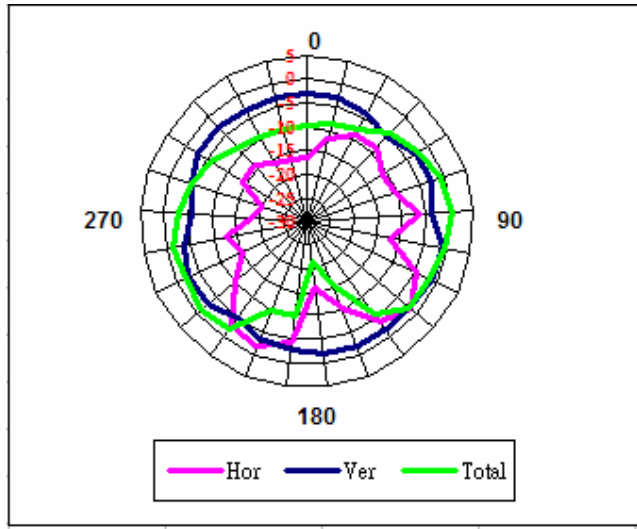
2100MHz radiation characteristic (Tablet mode with antenna positioned at 180-degree)

Main antenna: 1920 MHz(Tablet)



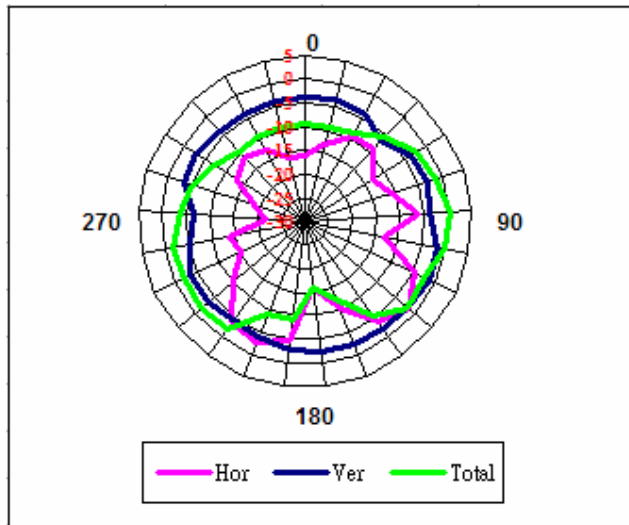
Frequency	1920 MHz
Vertical peak gain (dBi)	-1.05
Horizontal peak gain (dBi)	-1.36

Main antenna: 1950 MHz(Tablet)



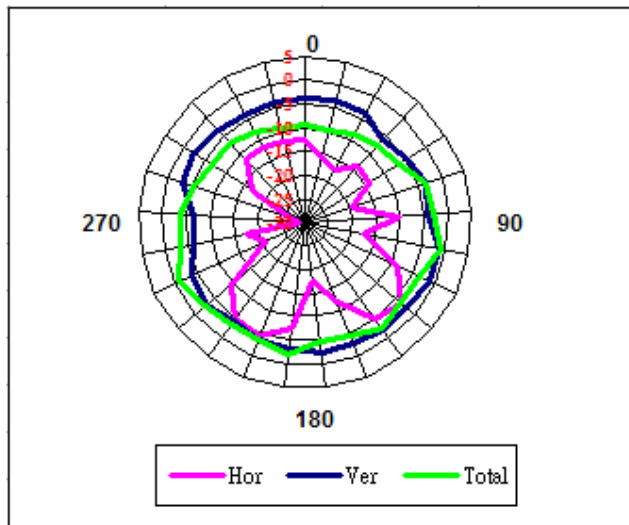
Frequency	1950 MHz
Vertical peak gain (dBi)	-1.12
Horizontal peak gain (dBi)	-1.66

Main antenna: 1980 MHz(Tablet)



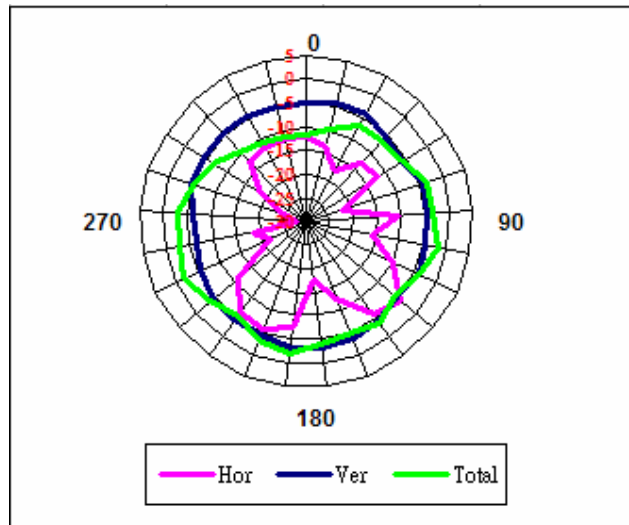
Frequency	1980 MHz
Vertical peak gain (dBi)	-1.31
Horizontal peak gain (dBi)	-1.72

Main antenna: 2110 MHz(Tablet)



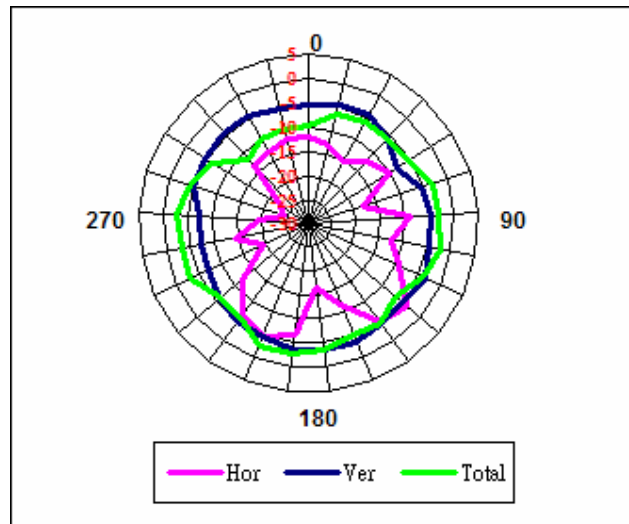
Frequency	2110 MHz
Vertical peak gain (dBi)	-2.76
Horizontal peak gain (dBi)	-3.79

Main antenna: 2140 MHz(Tablet)



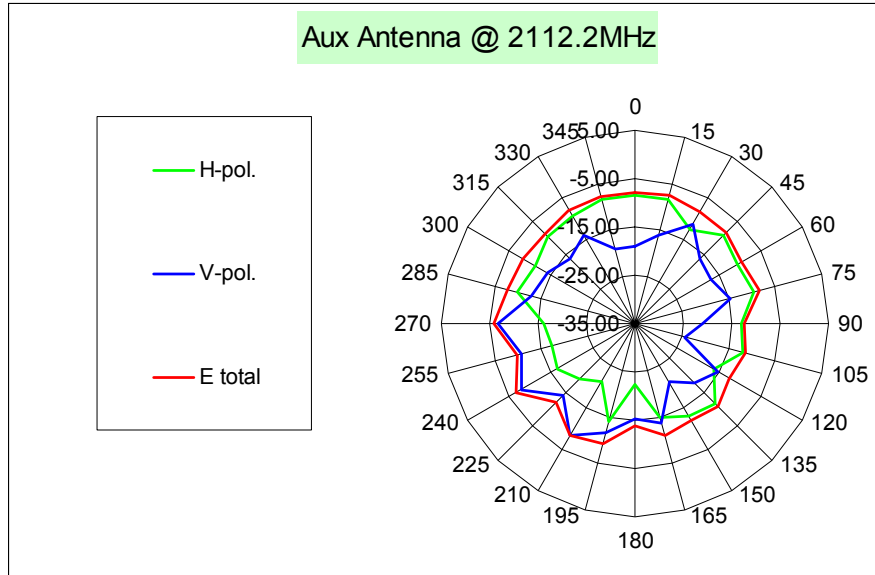
Frequency	2140 MHz
Vertical peak gain (dBi)	-3.19
Horizontal peak gain (dBi)	-4.40

Main antenna: 2170 MHz(Tablet)



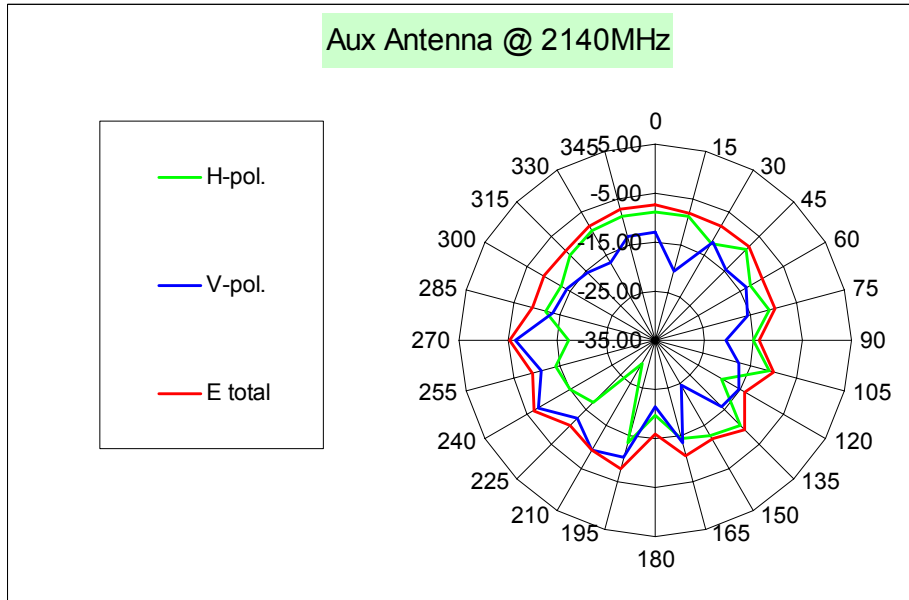
Frequency	2170 MHz
Vertical peak gain (dBi)	-3.44
Horizontal peak gain (dBi)	-3.47

Aux antenna: 2112.2 MHz(Tablet)



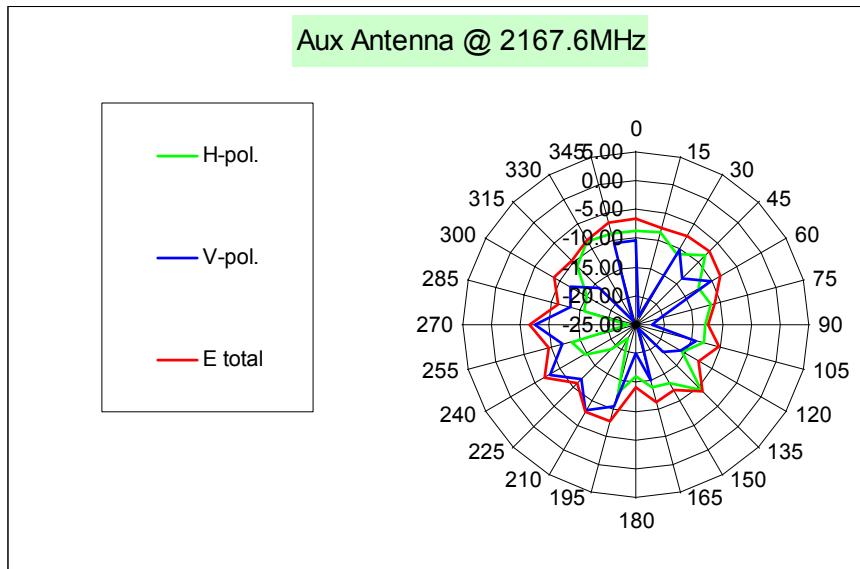
Center Frequency	2112.2 MHz
Horizontal (dBi) peak	-8.32
Vertical (dBi) peak	-6.77

Aux antenna: 2140 MHz(Tablet)



Center Frequency	2140 MHz
Horizontal (dBi) peak	-8.86
Vertical (dBi) peak	-6.45

Aux antenna: 2167.6MHz(Tablet)

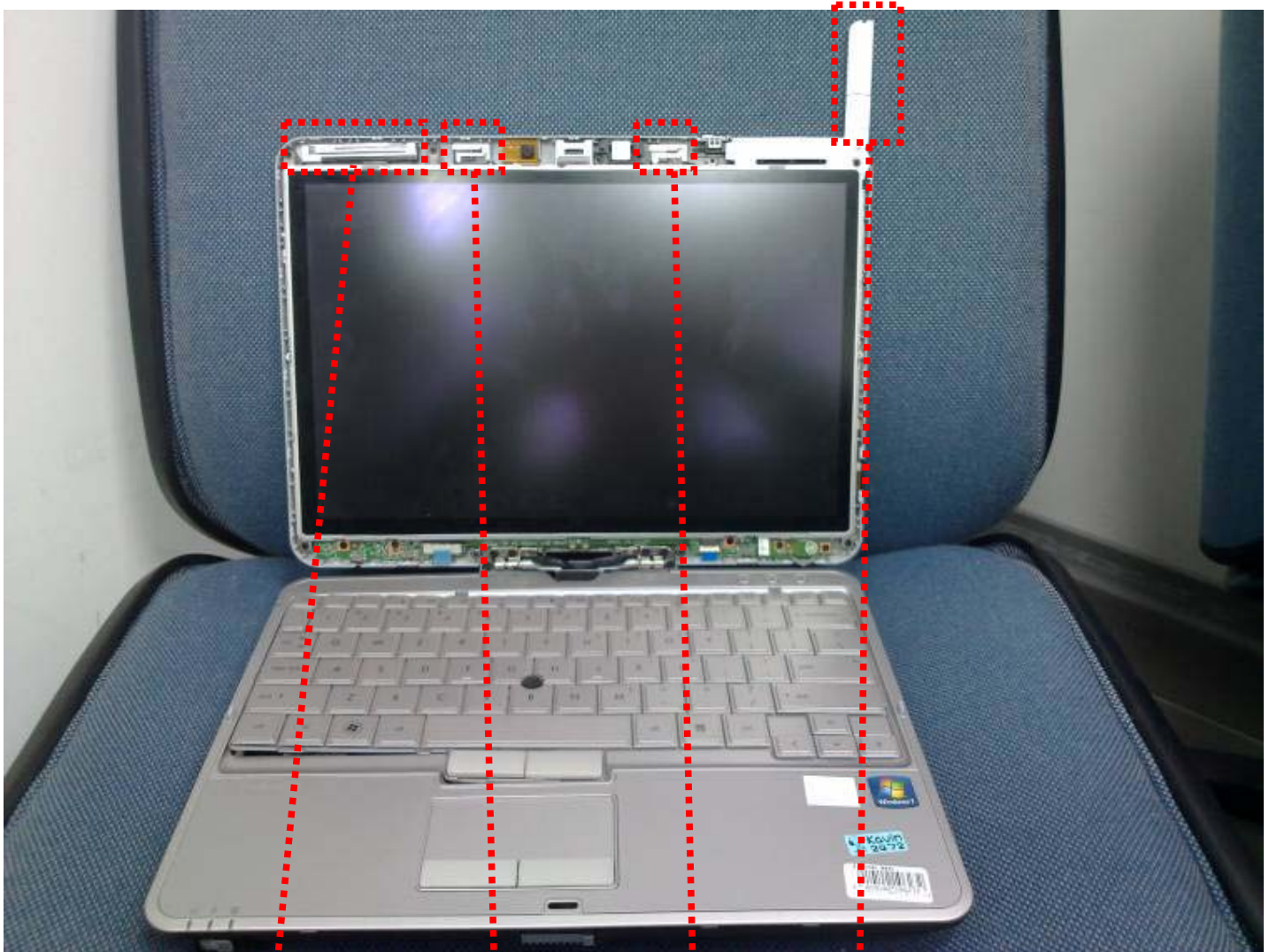


Center Frequency	2167.6 MHz
Horizontal (dBi) peak	-8.03
Vertical (dBi) peak	-7.75

Section 4. Host Platform Information

OEM / ODM Host platform: Wistron/Outfield platform correlated to antenna data

Rating Label Photo:



WWAN-AUX/GPS

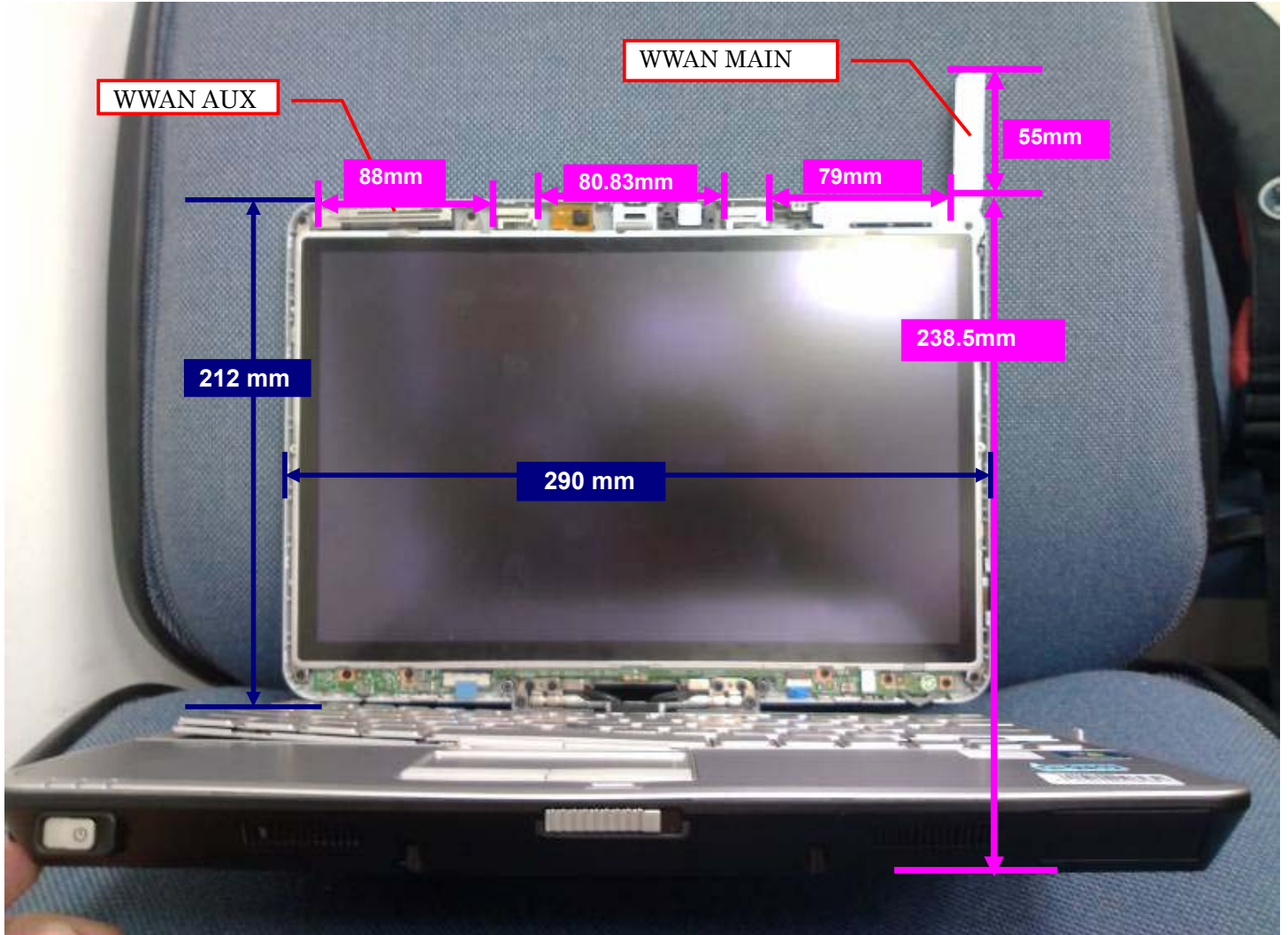
WLAN-MAIN

WLAN-AUX

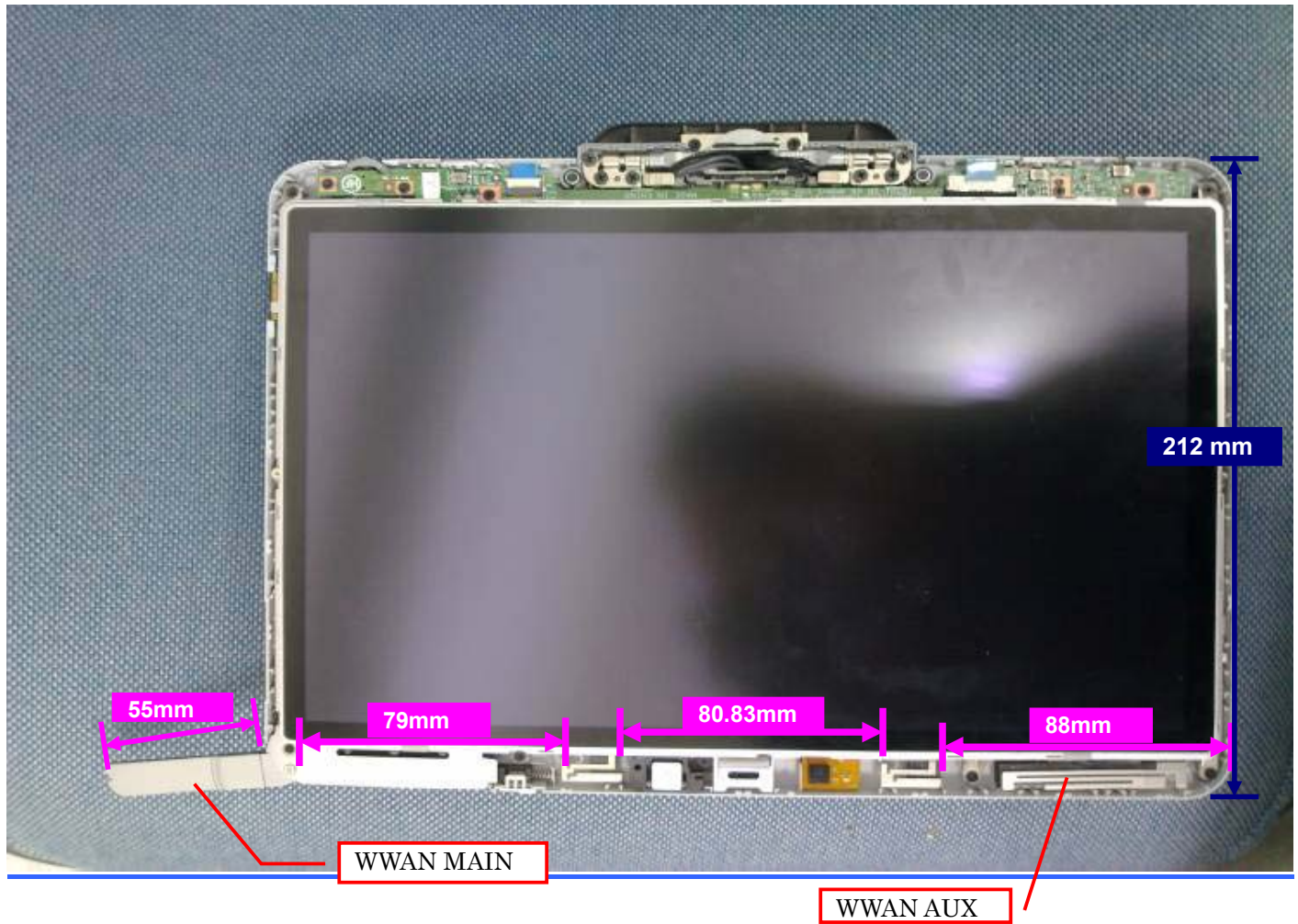
WWAN-Main

Section 5. Antenna Host Platform Location Information

Include a **dimensioned photo or dimensioned drawing** of Tx1, Tx2 and Tx3 antenna placements (measurements are not required for receive-only antenna). Any antenna that transmits must show dimensions to bottom of laptop. Laptop mode:



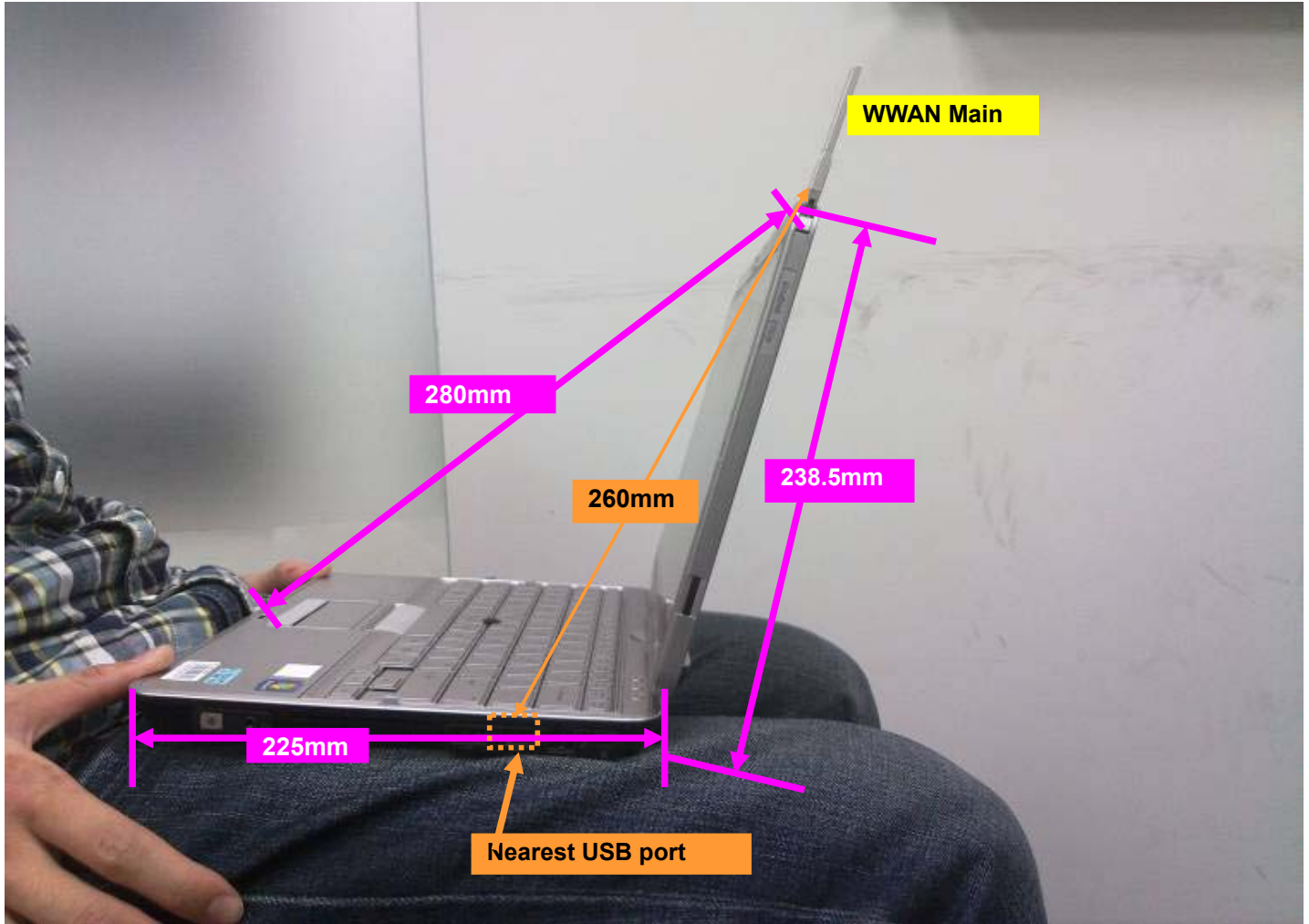
Tablet mode



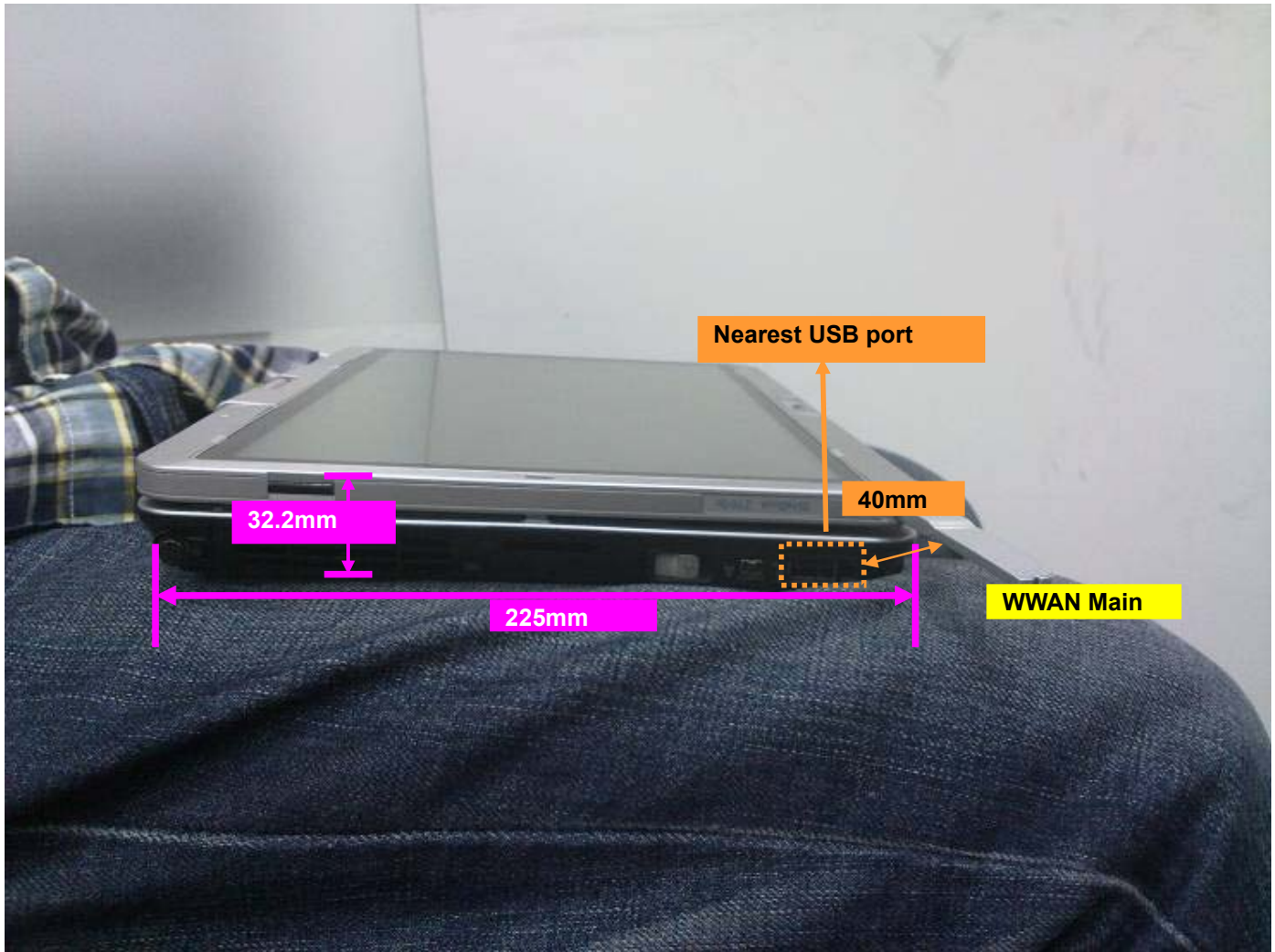
Section 6. Antenna dimensional information for SAR evaluation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between the transmit antennas and the user (excluding hands, wrist, feet, lap/ thigh, and ankle)

Laptop mode:



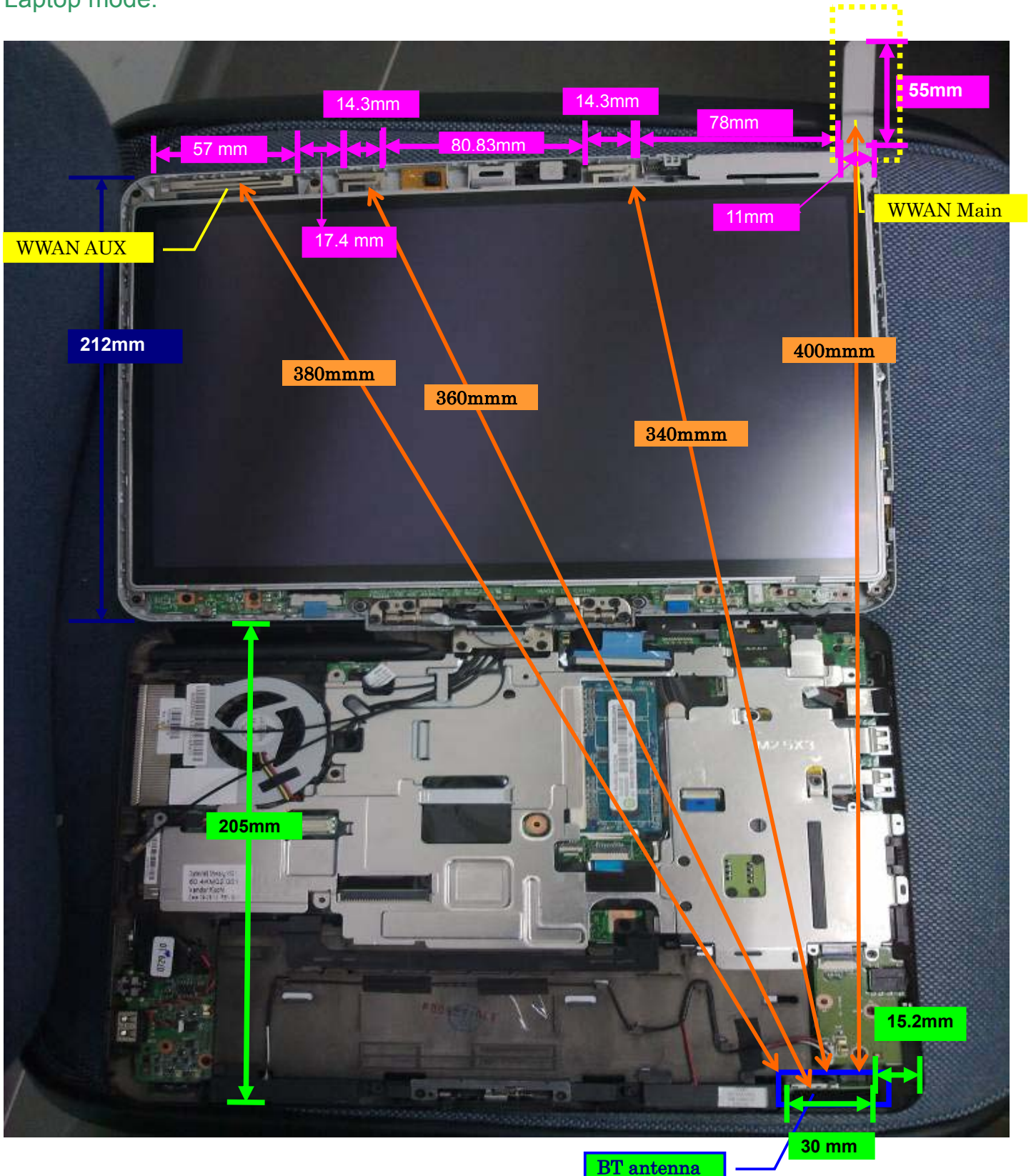
Tablet mode:



Section 7. Diagram Example of Co-Location Antenna Separation

Include a **dimensioned photo or dimensioned drawing** showing the distance (mm) between all WLAN transmit antennas and other co-located radiator transmit antenna such as Bluetooth, WWAN,..

Laptop mode:



Tablet mode:





Section 8. Local representative contact information

Local representative contact information is required for regulatory support for target countries below.

	Local company name	Contact name	Phone number	FAX Number	e-Mail Address	Notes
Argentina						
Azerbaijan						
Cambodia						
Indonesia						
Israel						
Malaysia						
Philippines						
Singapore						Telecommunication Equipment Dealer License Required
South Africa						
USA, Canada						
Vietnam						