Regulatory WLAN Antenna Information for Greenland

Hitachi Cable, Ltd

1-6-1, Otemachi, Chiyoda-ku, Tokyo, Japan

Antenna Specifications

Antenna Type (Material, Technology)	Main & Aux & MIMO ; Monopole Type
Antenna Model Number	HMT02-DL01-AS(WH) HMT02-DL01-AS(K) HMT02-DL01-MS(W) HMT02-DL01-MS(K) HMT02-DL01-MS(H)
Operating Frequency Range(s)	2.40 – 2.4835 GHz / 4.90 – 5.875 GHz
Peak Gain (802.11b/g / 2.4GHz Band) (dBi)	Main 3.0 / Aux 2.3 / MIMO 0
Peak Gain (802.11a / 5GHz Band) (dBi)	Main 0.9 / Aux 2.1 / MIMO 1.7
Radio Connector Type	Micro Coaxial Connector
Mid-Line Connector Type (If Applicable)	Molex SSMCX Connector

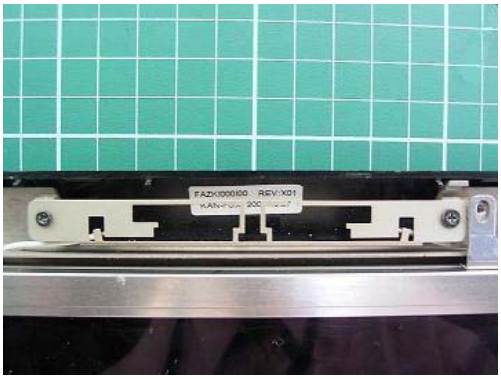
Note: Peak Gain should include all system losses (connector, cable, etc)

Cable Specifications

Cable Parameters	**Main**			**Aux**			**MIMO**		
	LCD Side	**Base Side**	**Total**	**LCD Side**	**Base Side**	**Total**	**LCD Side**	**Base Side**	**Total**
Length (mm)	270	644	914	300	644	944	380	603	983
Loss (Including Connectors) (dB) 2.4 GHz / 5 GHz	0.7/ 1.2	1.6/ 2.7	2.3/ 3.9	0.8/ 1.3	1.6/ 2.7	2.4/ 4.0	1.0/ 1.6	1.5/ 2.6	2.5/ 4.2
Description (Color, Diameter, Manufacturer)	White ϕ 1.37 mm Hitachi Cable			Black ϕ 1.37 mm Hitachi Cable			Gray ϕ 1.37 mm Hitachi Cable		

Note: For single cable assembly (no mid-line connector), use the 'Total' column for each cable length and list N/A in the ‘LCD’ and ‘Base’ fields

Cable Loss should be reported for the total cable assembly (for both Main and Aux antennas)



(a) Main& MIMO Antenna

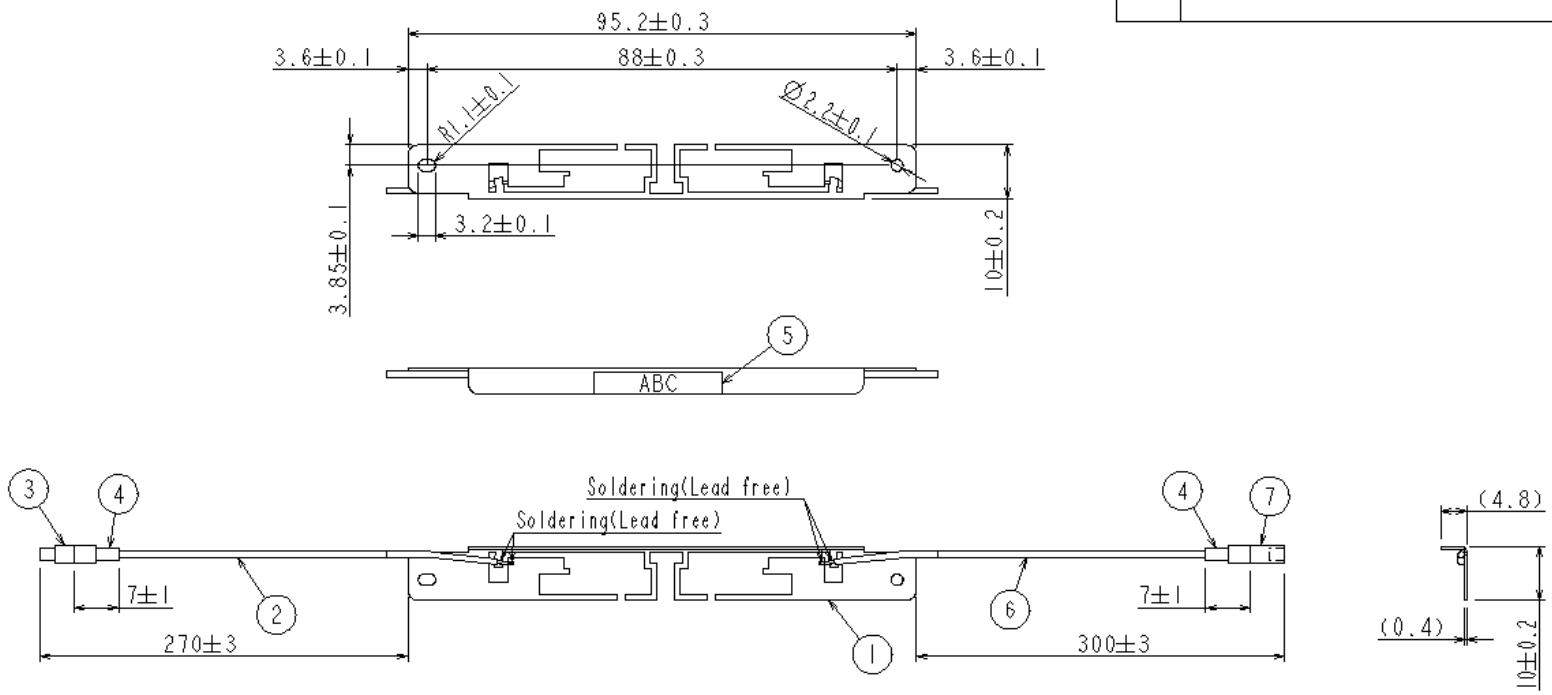
(b) Aux Antenna

Picture of Antenna installed in the notebook

Picture of Antenna

EH3855144

MARK	REVISION	DATE	NAME	CHKD.



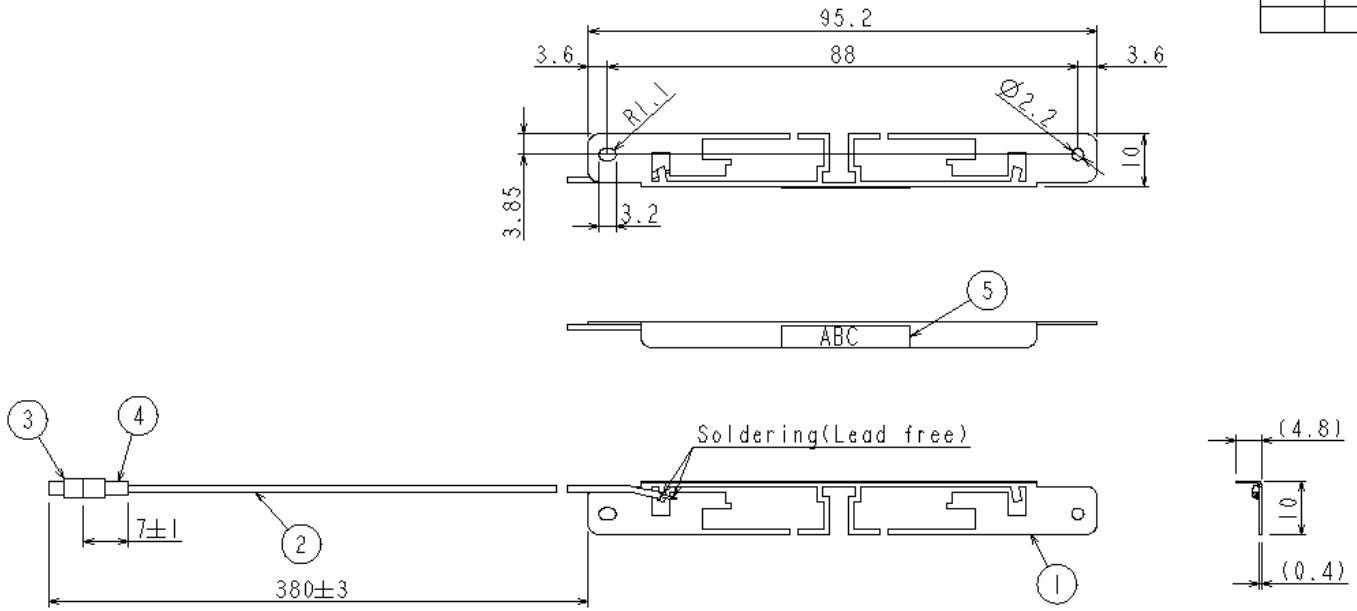
No.	Description
1	Metal Plate Antenna(HMT02-L rev1)
2	Coaxial Cable(Ø1.37,White)
3	SSMCX PLUG
4	Heat Shrinkable tube SUMITUBE F34
5	Lable
6	Coaxial Cable(Ø1.37,Gray)
7	SSMCX JACK

DWN.		06.02.22	TITLE
CHKD.		REGD. PROJ.	HMT02-DL01-AS(WH)
APPD.			
SCALE.	N.T.S		
Hitachi Cable, Ltd. Hitaka Works			EH3855144

CAD名:EH3855144 CAD名:HMT02-DL01-L モデルタイプ:ASSEM

EH3854764

MARK	REVISION	DATE	NAME	CHKD.



No.	Description
(1)	Metal Plate Antenna(HMT02-R)
(2)	Coaxial Cable(Ø1.37,Black)
(3)	SSMCX PLUG
(4)	Heat Shrinkable tube SUMITUBE F34
(5)	Lable

TOLERANCES OF DIMENSIONS	
Dimension	Tolerance
- 6	±0.1
6 - 30	±0.2
30 -	±0.3

DWN.	K.ENDO	05.10.20	
CHKD.	Y.YAMAMOTO	REGD.	PROJ.
APPD.	K.TSUKAMOTO		
SCALE.	N.T.S		

TITLE

HMT02-DL01-AS(K)

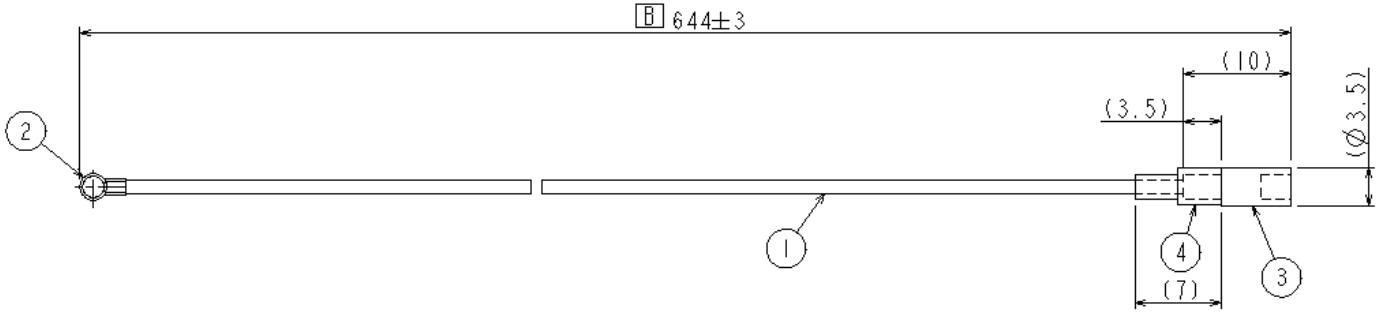
Hitachi Cable, Ltd.
Hitaka Works

EH3854764

CAD図名:EH3854764 CAD機種:HMT02-DL01-R モデルタイプ:ASSEM

EH3854767

MARK	REVISION	DATE	NAME	CHKD.
	First drawig(05.10.20/K.ENDO/S.TAKABA/K.TSUKAMOTO)			
A	Cable length changed.	05.12.16	K. ENDO	S.TAKABA
B	Cable length changed.	06.02.22		



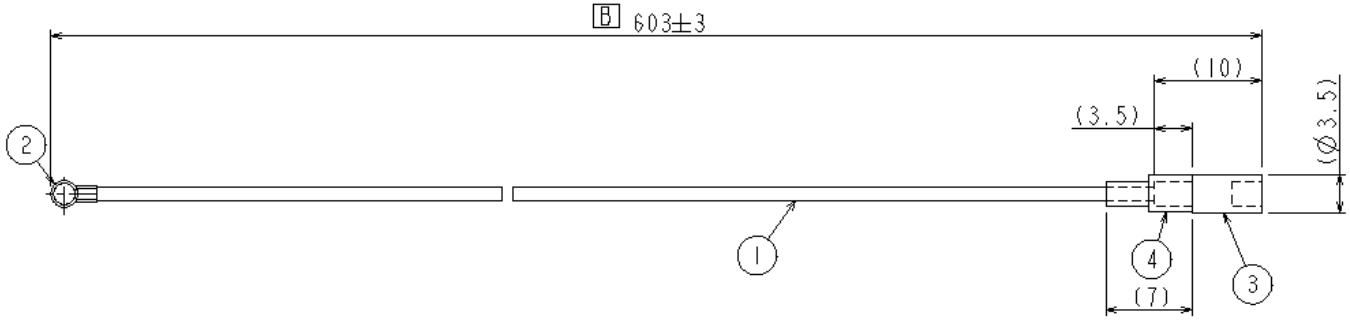
No.	Description
1	Coaxial Cable(Ø1.37,White)
2	mPCI connector Hirose U.FL-LP088
3	MMCX JACK
4	Heat Shrinkable tube SUMITUBE F34

	Customer P/N		
DWN.		06.02.22	TITLE
CHKD.		REGD. PROJ.	HMT02-DL01-MS(W)
APPD.			
SCALE.	N.T.S		
Hitachi Cable, Ltd. Hitaka Works			EH3854767

CAD図名:EH3854767RB CAD様式:NTKNAS1-1 モデルタイプ:PART

EH3854766

MARK	REVISION	DATE	NAME	CHKD.
	First drawig(05.10.20/K.ENDO/S.TAKABA/K.TSUKAMOTO)			
A	Cable length changed.	05.12.16	K. ENDO	S.TAKABA
B	Cable length changed.	06.02.22		



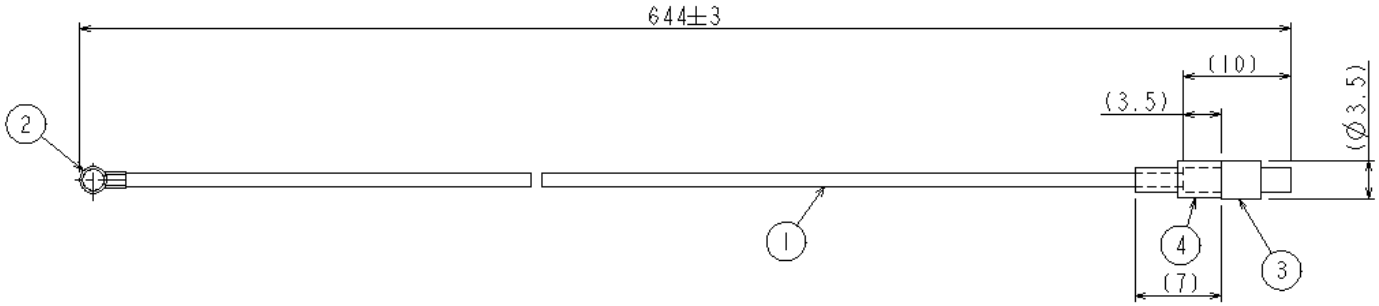
No.	Description
1	Coaxial Cable(Ø1.37,Black)
2	mPCI connector Hirose U.FL-LP088
3	MMCX JACK
4	Heat Shrinkable tube SUMITUBE F34

	Customer P/N		
DWN.		06.02.22	TITLE
CHKD.		REGD. PROJ.	HMT02-DL01-MS(K)
APPD.			
SCALE.	N.T.S		
Hitachi Cable, Ltd. Hitaka Works			EH3854766

CAD図名:EH3854766RB CAD様式:NTKNAS1-1 モデルタイプ:PART

EH3855145

MARK	REVISION	DATE	NAME	CHKD.

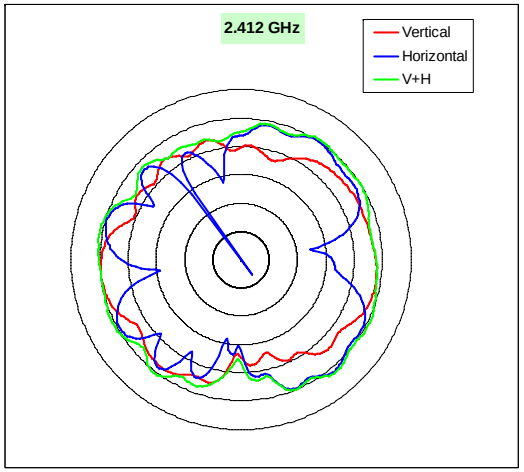


No.	Description
1	Coaxial Cable(Ø1.37,Gray)
2	mPCI connector Hirose U.FL-LP088
3	MMCX PLUG
4	Heat Shrinkable tube SUMITUBE F34

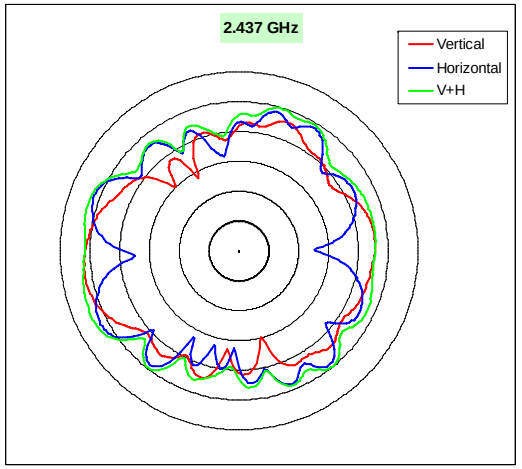
	Customer P/N		
DWN.		06.02.22	TITLE
CHKD.		REGD. PROJ.	HMT02-DL01-MS(H)
APPD.			
SCALE.	N.T.S		
Hitachi Cable, Ltd. Hitaka Works			EH3855145

CAD名:EH3855145 CAD種類:NTKNAS1-1 モデルタイプ:PART

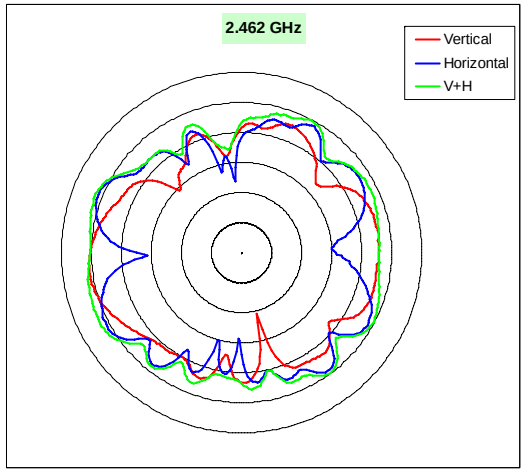
Main Antenna (1)



Frequency (MHz)	2412
Vertical Peak Gain (dBi)	1.8
Horizontal Peak Gain (dBi)	3.0
V + H Peak Gain (dBi)	4.6

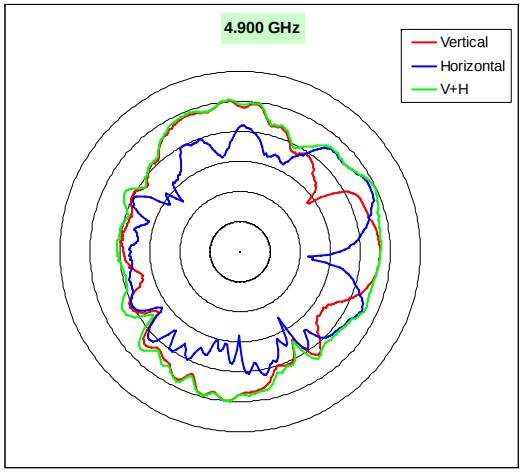


Frequency (MHz)	2437
Vertical Peak Gain (dBi)	2.2
Horizontal Peak Gain (dBi)	2.3
V + H Peak Gain (dBi)	4.0

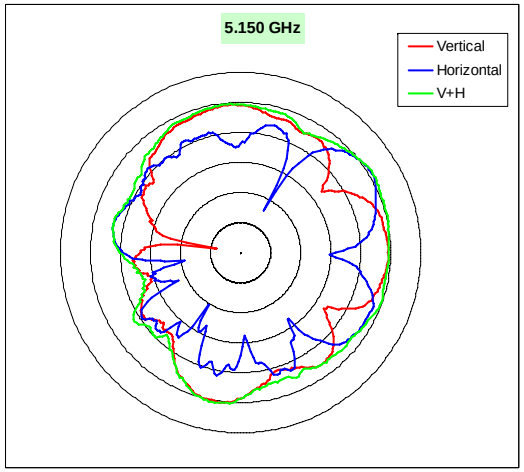


Frequency (MHz)	2462
Vertical Peak Gain (dBi)	0.8
Horizontal Peak Gain (dBi)	1.1
V + H Peak Gain (dBi)	2.5

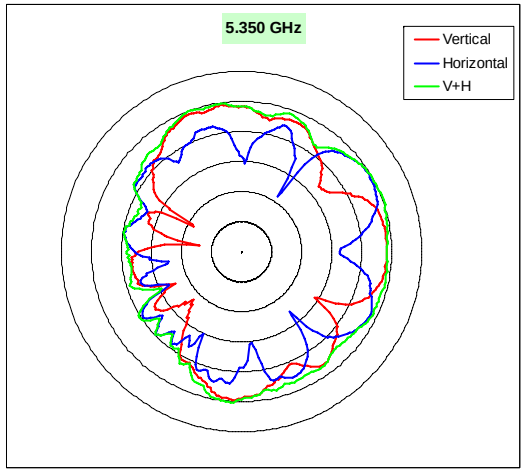
Main Antenna (2)



Frequency (MHz)	4900
Vertical Peak Gain (dBi)	0.2
Horizontal Peak Gain (dBi)	-1.8
V + H Peak Gain (dBi)	0.4

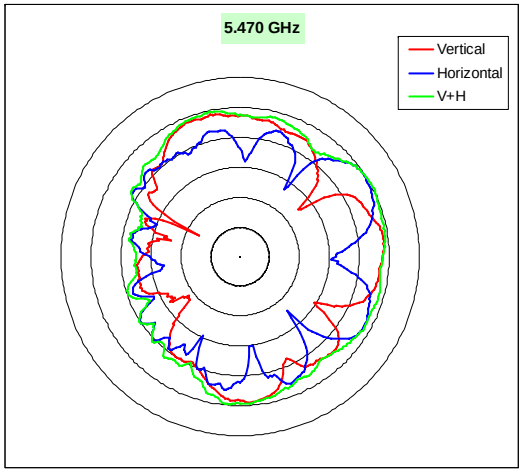


Frequency (MHz)	5150
Vertical Peak Gain (dBi)	0
Horizontal Peak Gain (dBi)	0.9
V + H Peak Gain (dBi)	1.2

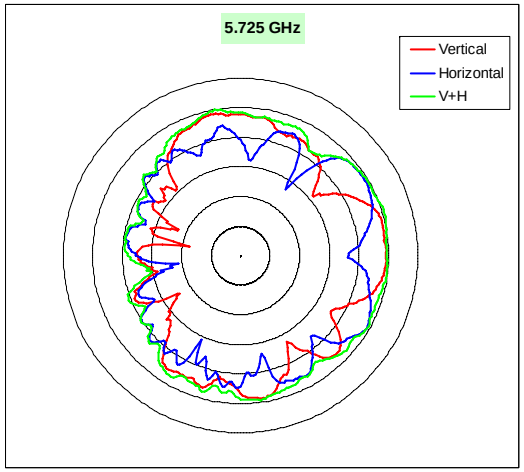


Frequency (MHz)	5350
Vertical Peak Gain (dBi)	-0.6
Horizontal Peak Gain (dBi)	-0.7
V + H Peak Gain (dBi)	0.2

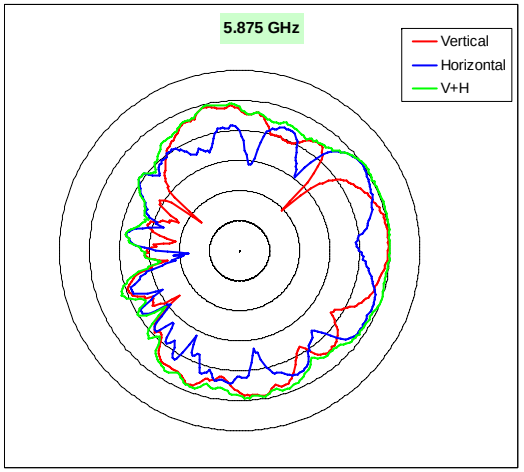
Main Antenna (3)



Frequency (MHz)	5470
Vertical Peak Gain (dBi)	-1.0
Horizontal Peak Gain (dBi)	-0.4
V + H Peak Gain (dBi)	0.3

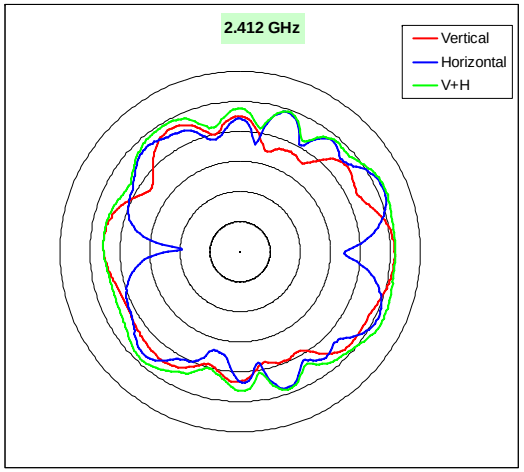


Frequency (MHz)	5725
Vertical Peak Gain (dBi)	-0.8
Horizontal Peak Gain (dBi)	-0.9
V + H Peak Gain (dBi)	0.6

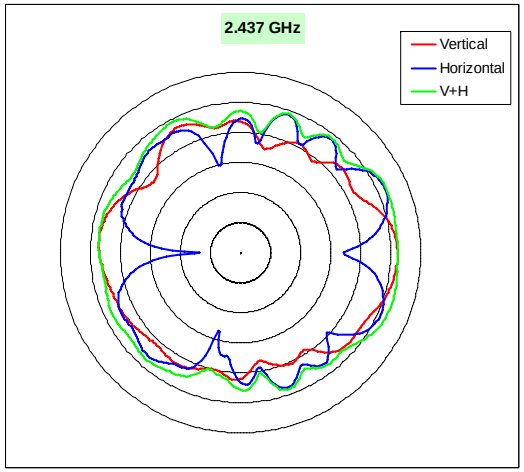


Frequency (MHz)	5875
Vertical Peak Gain (dBi)	-0.4
Horizontal Peak Gain (dBi)	-0.3
V + H Peak Gain (dBi)	0.4

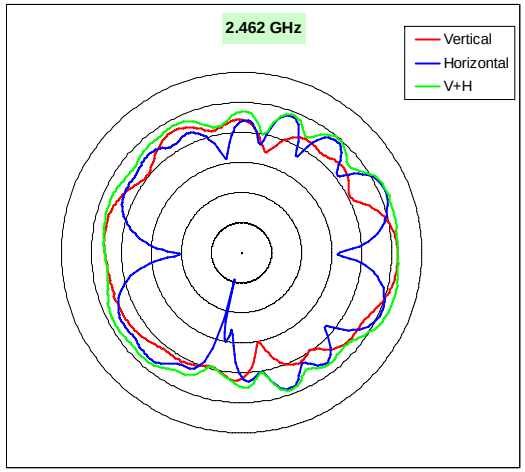
Aux Antenna (1)



Frequency (MHz)	2412
Vertical Peak Gain (dBi)	1.4
Horizontal Peak Gain (dBi)	1.9
V + H Peak Gain (dBi)	2.6

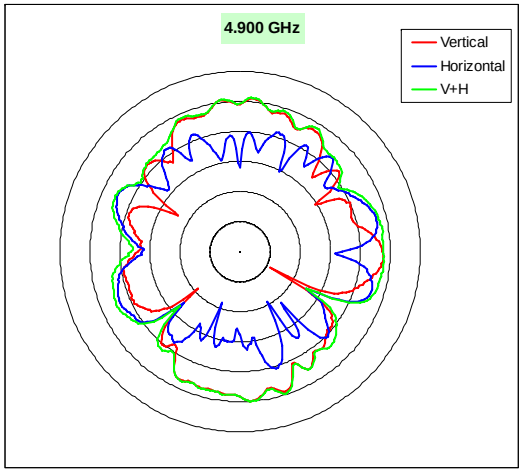


Frequency (MHz)	2437
Vertical Peak Gain (dBi)	2.0
Horizontal Peak Gain (dBi)	2.3
V + H Peak Gain (dBi)	3.0

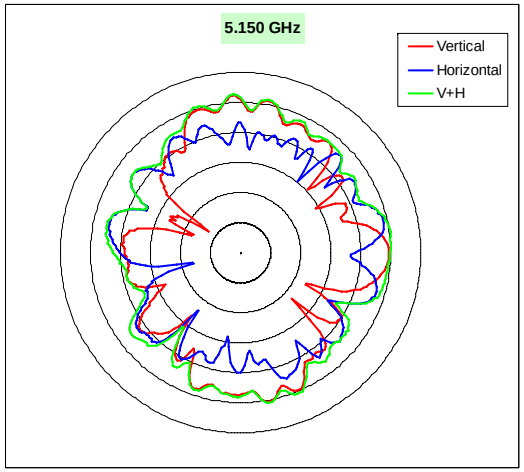


Frequency (MHz)	2462
Vertical Peak Gain (dBi)	1.8
Horizontal Peak Gain (dBi)	1.8
V + H Peak Gain (dBi)	2.8

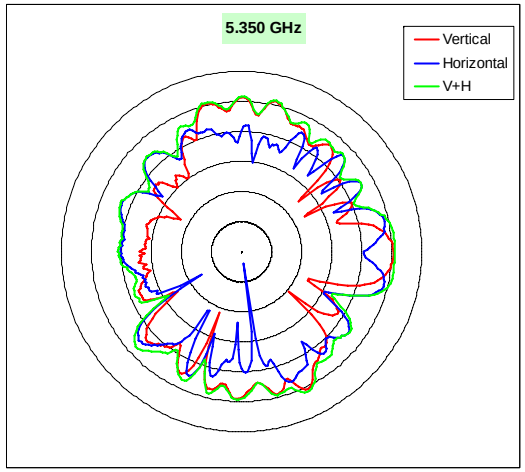
Aux Antenna (2)



Frequency (MHz)	4900
Vertical Peak Gain (dBi)	1.0
Horizontal Peak Gain (dBi)	-3.5
V + H Peak Gain (dBi)	1.3

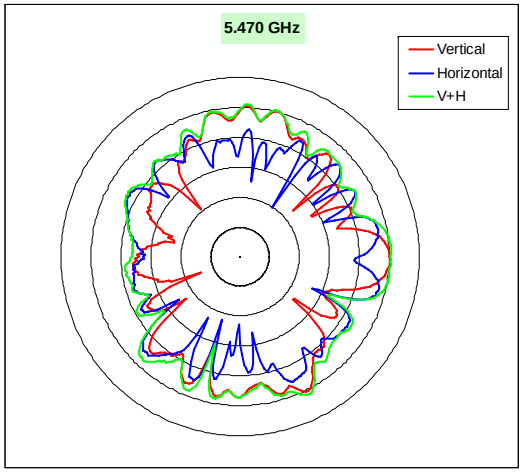


Frequency (MHz)	5150
Vertical Peak Gain (dBi)	2.1
Horizontal Peak Gain (dBi)	-1.5
V + H Peak Gain (dBi)	2.5

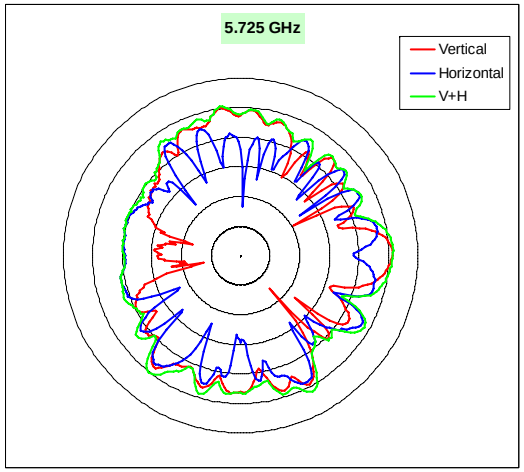


Frequency (MHz)	5350
Vertical Peak Gain (dBi)	1.1
Horizontal Peak Gain (dBi)	-1.4
V + H Peak Gain (dBi)	1.5

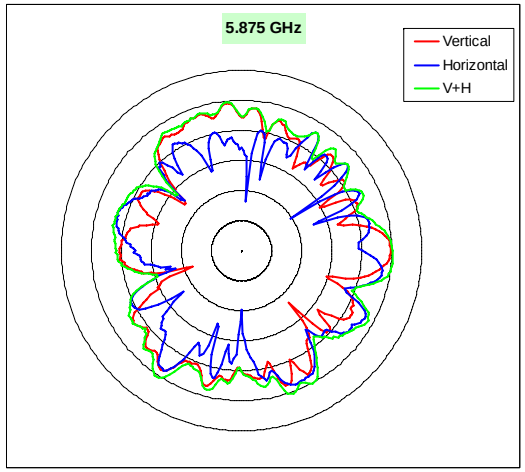
Aux Antenna (3)



Frequency (MHz)	5470
Vertical Peak Gain (dBi)	0.5
Horizontal Peak Gain (dBi)	-2.2
V + H Peak Gain (dBi)	1.5

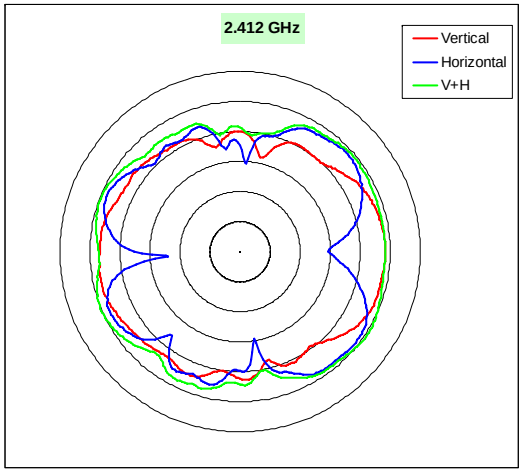


Frequency (MHz)	5725
Vertical Peak Gain (dBi)	1.2
Horizontal Peak Gain (dBi)	-1.7
V + H Peak Gain (dBi)	1.8

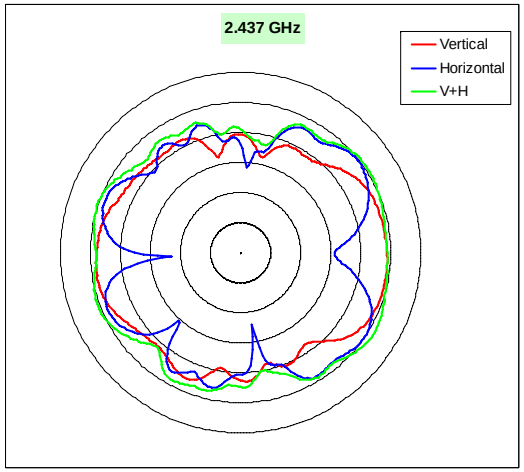


Frequency (MHz)	5875
Vertical Peak Gain (dBi)	-0.5
Horizontal Peak Gain (dBi)	-1.9
V + H Peak Gain (dBi)	0.6

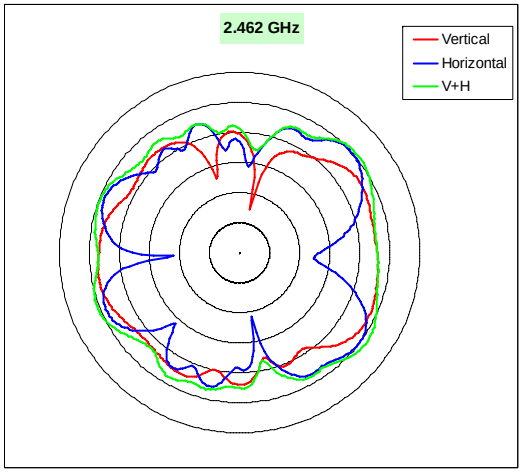
MIMO Antenna (1)



Frequency (MHz)	2412
Vertical Peak Gain (dBi)	-1.9
Horizontal Peak Gain (dBi)	-1.1
V + H Peak Gain (dBi)	0.4

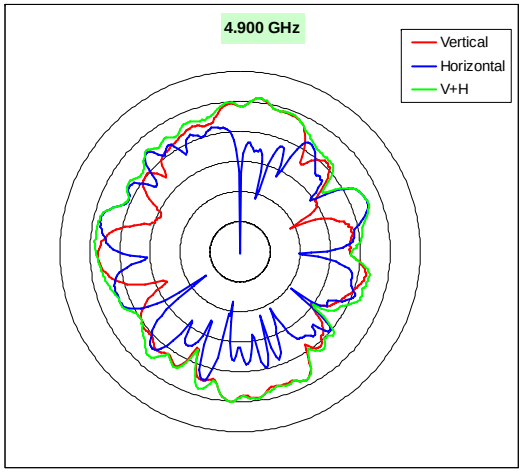


Frequency (MHz)	2437
Vertical Peak Gain (dBi)	-1.1
Horizontal Peak Gain (dBi)	-0.1
V + H Peak Gain (dBi)	1.7

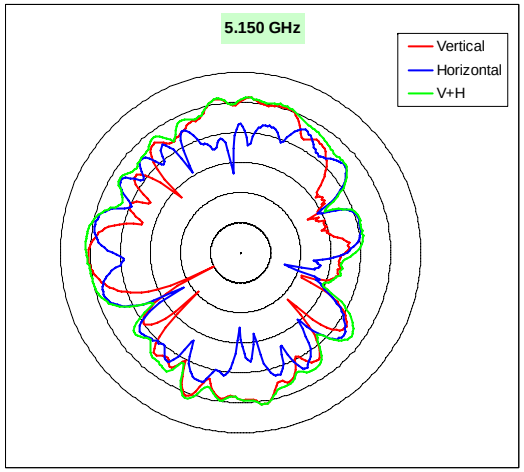


Frequency (MHz)	2462
Vertical Peak Gain (dBi)	-2.1
Horizontal Peak Gain (dBi)	0
V + H Peak Gain (dBi)	1.6

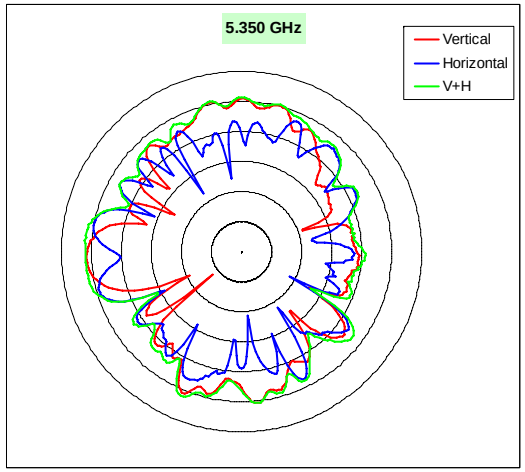
MIMO Antenna (2)



Frequency (MHz)	4900
Vertical Peak Gain (dBi)	1.2
Horizontal Peak Gain (dBi)	-2.5
V + H Peak Gain (dBi)	1.3

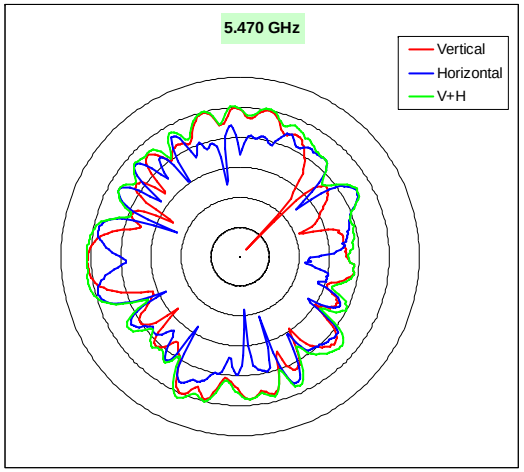


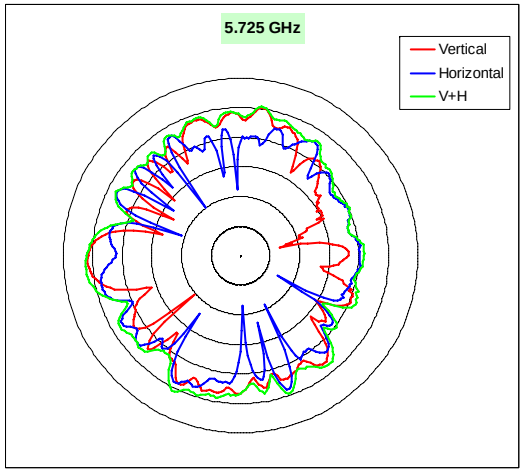
Frequency (MHz)	5150
Vertical Peak Gain (dBi)	1.5
Horizontal Peak Gain (dBi)	-0.8
V + H Peak Gain (dBi)	1.7

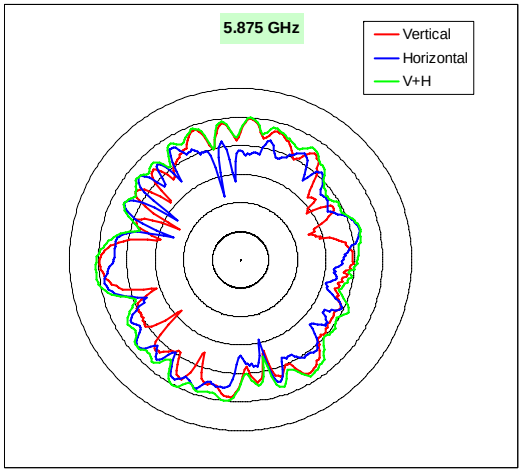


Frequency (MHz)	5350
Vertical Peak Gain (dBi)	1.5
Horizontal Peak Gain (dBi)	-0.1
V + H Peak Gain (dBi)	2.0

MIMO Antenna (3)







Frequency (MHz)	5470
Vertical Peak Gain (dBi)	1.2
Horizontal Peak Gain (dBi)	-0.8
V + H Peak Gain (dBi)	1.6

Frequency (MHz)	5725
Vertical Peak Gain (dBi)	1.7
Horizontal Peak Gain (dBi)	-1.7
V + H Peak Gain (dBi)	2.3

Frequency (MHz)	5875
Vertical Peak Gain (dBi)	-0.4
Horizontal Peak Gain (dBi)	-1.6
V + H Peak Gain (dBi)	1.1