Conversion Factor Uncertainty Assessment

Frequency:		2450MHz	
Epsilon:	52.7 (+/-5%)	**Sigma:**	1.95 S/m (+/-5%)
ConvF			
Channel X:	4.01	7%(K=2)	
Channel Y:	4.01	7%(K=2)	
Channel Z:	4.01	7%(K=2)	

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

Boundary Effect:

For a distance of 0.4mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2008.

NCL CALIBRATION LABORATORIES

Calibration File No.: CP-888

Client.: APREL

C E R T I F I C A T E OF C A L I B R A T I O N

It is certified that the equipment identified below has been calibrated in the **NCL CALIBRATION LABORATORIES** by qualified personnel following recognized procedures and using transfer standards traceable to NRC/NIST.

Equipment: Miniature Isotropic RF Probe 5800 MHz

Manufacturer: APREL Laboratories
Model No.: E-030
Serial No.: 018

Calibration in Body Tissue

Calibration Procedure: SSI/DRB-TP-D01-032-E020-V2
Project No: Internal APREL

Calibrated: 3rd May 2008
Released on: 3rd May 2008

This Calibration Certificate is Incomplete Unless Accompanied with the Calibration Results Summary

Released By: _____

NCL CALIBRATION LABORATORIES

51 SPECTRUM WAY
NEPEAN, ONTARIO
CANADA K2R 1E6

Division of APREL Lab.
TEL: (613) 820-4988
FAX: (613) 820-4161

Introduction

This Calibration Report reproduces the results of the calibration performed in line with the SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure. The results contained within this report are for APREL E-Field Probe E-030 018.

References

SSI/DRB-TP-D01-032-E020-V2 E-Field Probe Calibration Procedure
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"
SSI-TP-011 Tissue Calibration Procedure

Conditions

Probe 018 was a new probe taken from stock prior to calibration.

Ambient Temperature of the Laboratory: 22 °C +/- 0.5°C
Temperature of the Tissue: 21 °C +/- 0.5°C

We the undersigned attest that to the best of our knowledge the calibration of this probe has been accurately conducted and that all information contained within this report has been reviewed for accuracy.

Stuart Nicol

Jesse Hones

Calibration Results Summary

Probe Type:	E-Field Probe E-030
Serial Number:	018
Frequency:	5800 MHz
Sensor Offset:	0.44 mm
Sensor Length:	2.5 mm
Tip Enclosure:	Ertalyte*
Tip Diameter:	**<**2.9 mm
Tip Length:	60 mm
Total Length:	290 mm

*Resistive to recommended tissue recipes per IEEE-1528

Sensitivity in Air

Channel X:	1.2 $\mu V/(V/m)^2$
Channel Y:	1.2 $\mu V/(V/m)^2$
Channel Z:	1.2 $\mu V/(V/m)^2$
Diode Compression Point:	95 mV

Sensitivity in Body Tissue

Frequency: 5800 MHz

Epsilon: 48.2 (+/-10%) **Sigma:** 6.0 S/m (+/-10%)

ConvF

Channel X: 3.2

Channel Y: 3.2

Channel Z: 3.2

Tissue sensitivity values were calculated using the load impedance of the APREL Laboratories Daq-Paq and corrected for broadband calibration factor.

Boundary Effect:

Uncertainty resulting from the boundary effect is less than 2% for the distance between the tip of the probe and the tissue boundary, when less than 2.44mm.

Spatial Resolution:

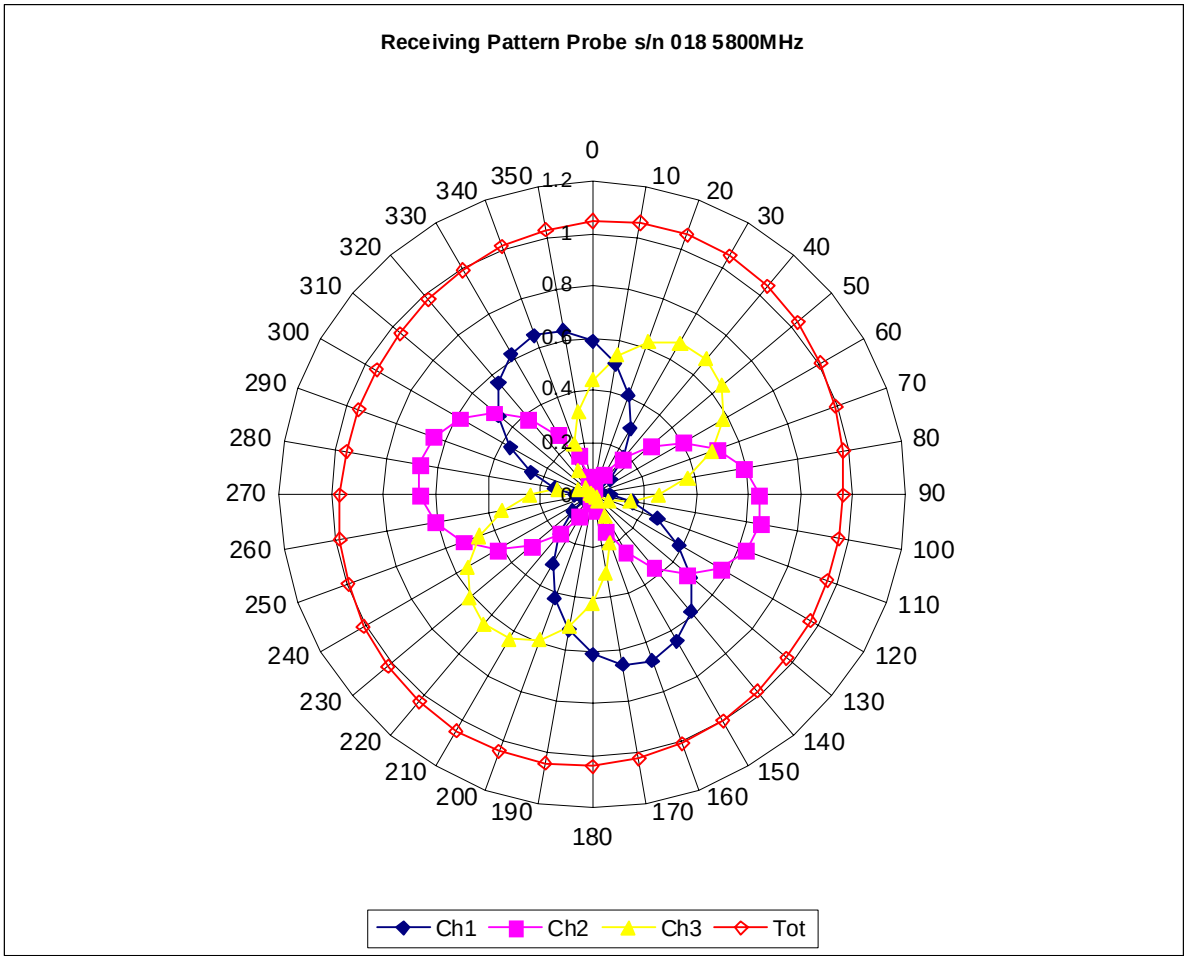
The measured probe tip diameter is 2.9 mm (+/- 0.01 mm) and therefore meets the requirements of SSI/DRB-TP-D01-032 for spatial resolution.

Broad Band Calibration:

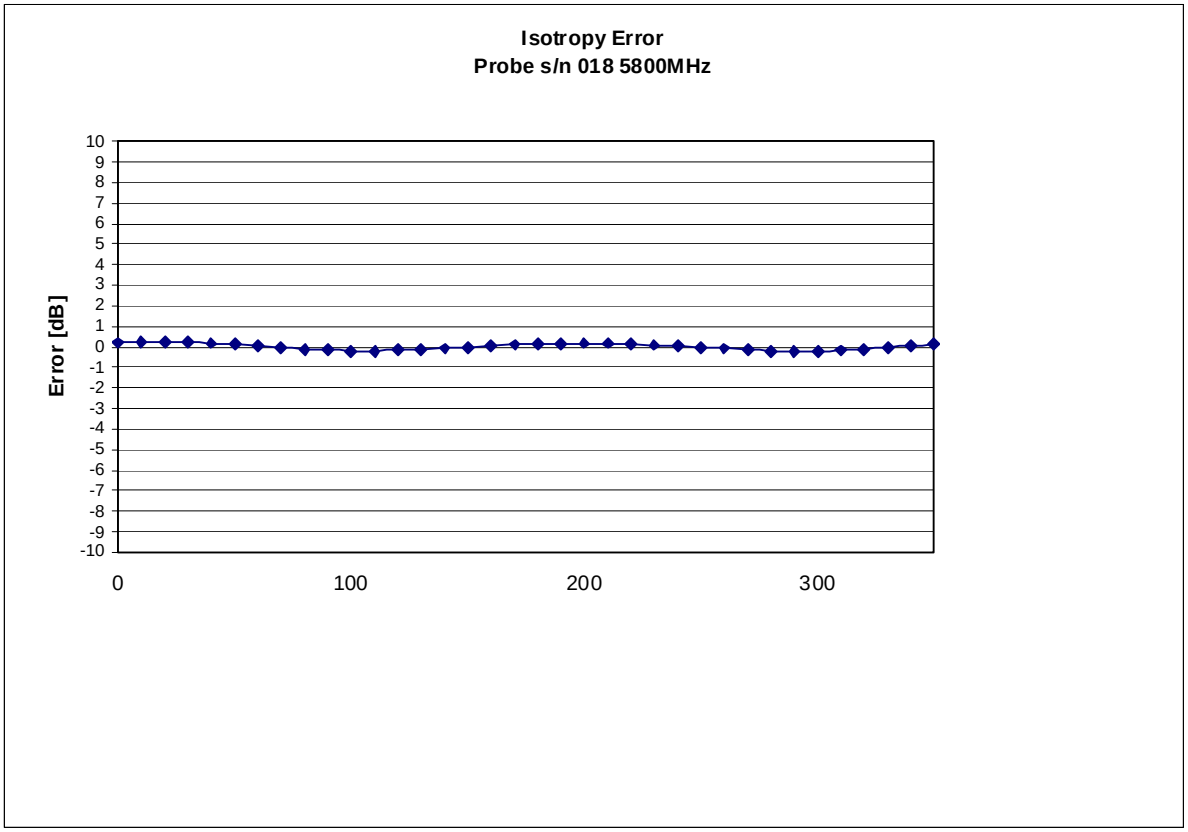
The probe was assessed for sensitivity and conversion factor using a +/- 40MHz deviation from the centre frequency.

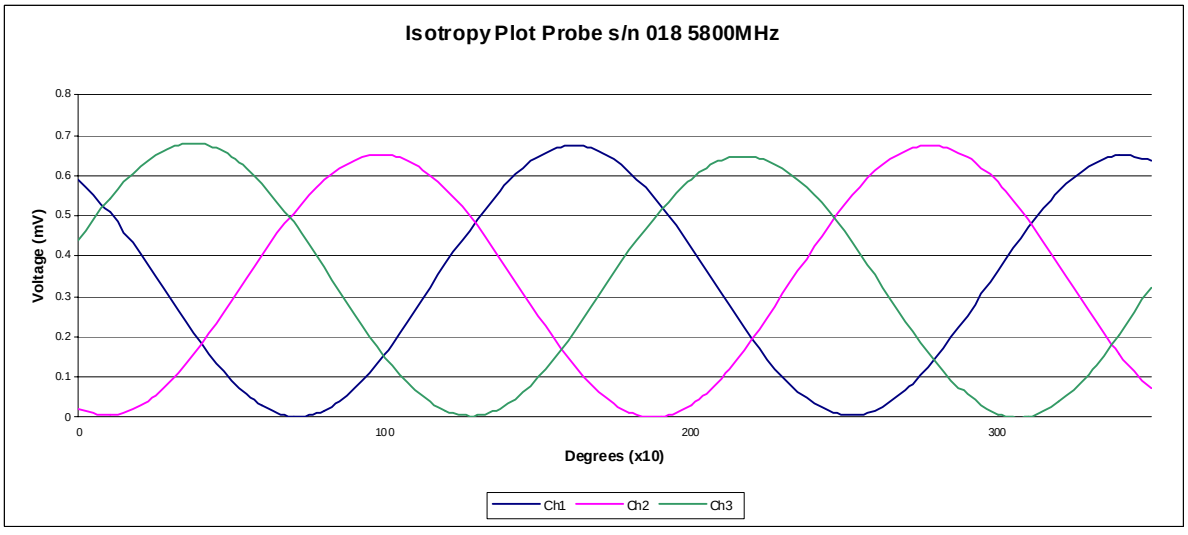
Deviation at -40MHz: -3.07%
Deviation at +40MHz: +3.22%

Receiving Pattern 5800 MHz (Air)



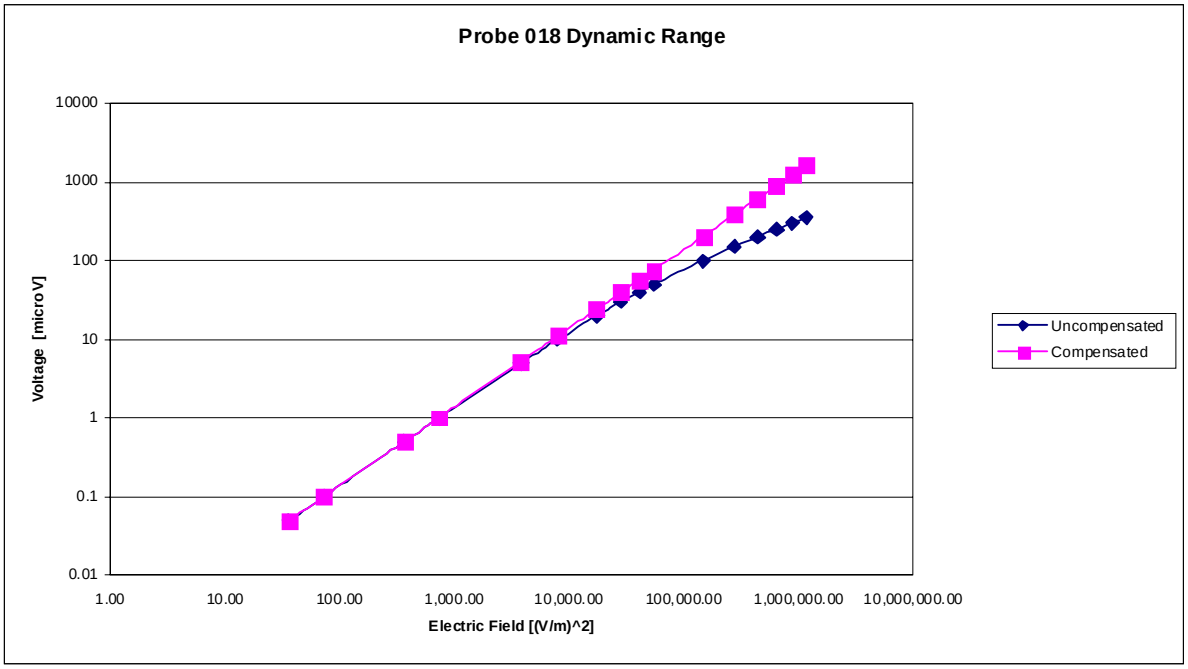
Isotropy Error 5800 MHz (Air)



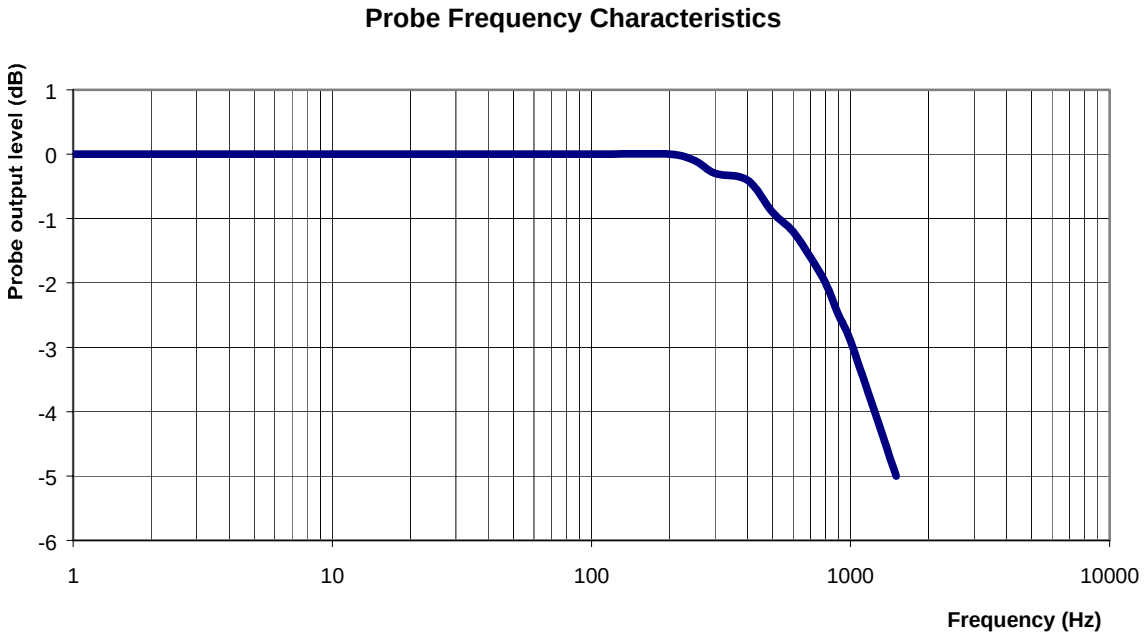


Isotropicity in Tissue: 0.10 dB

Dynamic Range



Video Bandwidth



Video Bandwidth at 500 Hz 1 dB
Video Bandwidth at 1.02 KHz: 3 dB

Conversion Factor Uncertainty Assessment

Frequency:		5800MHz	
Epsilon:	48.2 (+/-10%)	**Sigma:**	6.0 S/m (+/-10%)
ConvF			
Channel X:	3.2	7%(K=2)	
Channel Y:	3.2	7%(K=2)	
Channel Z:	3.2	7%(K=2)	

To minimize the uncertainty calculation all tissue sensitivity values were calculated using a load impedance of 5 MΩ.

Boundary Effect:

For a distance of 0.4mm the evaluated uncertainty (increase in the probe sensitivity) is less than 2%.

Test Equipment

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List May 2008.

Regulatory WLAN Antenna information
2.45/5GHz Hepburn series Multiple Band Antennas with cable & connector For IEEE 802.11/a/g/n
(English Language Required for Intel Regulatory Review / Approval)

Platform	
Platform Owner	Intel
Brand Name	Dell
Model Name	Hepburn
ODM	Quanta
Target Launch Date	(2008/01/ 21)
Antenna	
Brand Name	ACON
Part Number	■ Tx1 Antenna: **APP8P-700045**
	■ Tx2 Antenna: **APP8P-700045**
	■ Tx3 Antenna: **APP8P-700046**
Module	
With WLAN Module	□x 512AN_HMW
(Check Box)	□x 533AN_HMW

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. (S. Korea requires photographs of antennas for approval submission). Taiwan requires pictures of each antenna type shown in the system.	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

NOTE:
(*) **if 3rd antenna is Rx only (e.g. receive only for 4965AGN) then peak gain and cable loss not required**

Antenna Information

Section 1. Antenna Assembly Specifications

Antenna Assembly Summary:

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: APP8P-700045) Tx1 main antenna	ACON Corporation	Monopole	1) KURABE /Sumitomo /KBE 2) O,D. 1.13mm 50 ohm coaxial cable 3)length:737 mm 4) Connector P/N:I-PEX MHF	2400-2500MHz 0.31dBi(peak)	2400-2500MHz 2.39 dBi (peak)	2400-2500MHz 2.5. max	2400-2500MHz 2.08 dBi (peak)
				5150-5350MHz -0.81 dBi (peak)	5150-5350MHz 2.05 dBi (peak)	5150-5350MHz 2.5_ max	5150-5350MHz 2.86 dBi (peak)
				5470-5725MHz -1.10 dBi (peak)	5470-5725MHz 1.87 dBi (peak)	5470-5725MHz 2.5 max	5470-5725MHz 2.97 dBi (peak)
				5725-5850MHz -1.05 dBi (peak)	5725-5850MHz 2.04 dBi (peak)	5725-5850MHz 2.5. max	5725-5850MHz 3.09 dBi (peak)
(P/N: APP8P-700045) Tx2 Aux antenna	ACON Corporation	PIFA	1) KURABE /Sumitomo /KBE 2) O,D. 1.13mm 50 ohm coaxial cable 3)length:697 mm 4) Connector P/N:I-PEX MHF	2400-2500MHz 0.79 dBi(peak)	2400-2500MHz 2.75dBi (peak)	2400-2500MHz 2.5. max	2400-2500MHz 1.96 dBi (peak)
				5150-5350MHz -0.11 dBi (peak)	5150-5350MHz 2.59 dBi (peak)	5150-5350MHz 2.5. max	5150-5350MHz 2.70 dBi (peak)
				5470-5725MHz -1.83.dBi (peak)	5470-5725MHz 0.98 dBi (peak)	5470-5725MHz .2.5 max	5470-5725MHz 2.81 dBi (peak)
				5725-5850MHz -0.57dBi (peak)	5725-5850MHz 2.35 dBi (peak)	5725-5850MHz 2.5. max	5725-5850MHz 2.92 dBi (peak)
(P/N: APP8P-700046) Tx3 (or Rx3) MIMO antenna	ACON Corporation	PIFA	1) KURABE /Sumitomo /KBE 2) O,D. 1.13mm 50 ohm coaxial cable 3)length:685.5 mm 4) Connector P/N:I-PEX MHF	2400-2500MHz -1.45 dBi (peak) *	2400-2500MHz 0.48 dBi (peak) *	2400-2500MHz 2.5 max *	2400-2500MHz 1.93 dBi (peak) *
				5150-5350MHz -0.69 dBi (peak) *	5150-5350MHz 1.97 dBi (peak) *	5150-5350MHz 2.5 max *	5150-5350MHz 2.66 dBi (peak) *
				5470-5725MHz 0.39 dBi (peak) *	5470-5725MHz 3.15 dBi (peak) *	5470-5725MHz 2.5 max *	5470-5725MHz 2.76 dBi (peak) *
				5725-5850MHz 0.39 dBi (peak) *	5725-5850MHz 3.27 dBi (peak) *	5725-5850MHz 2.5 max *	5725-5850MHz 2.88 dBi (peak) *

NOTE:
*) **If Rx3 only (3rd antenna receives only, e.g. for 4965AGN) then the information marked with * is not required**

Antenna Peak Gain Table:

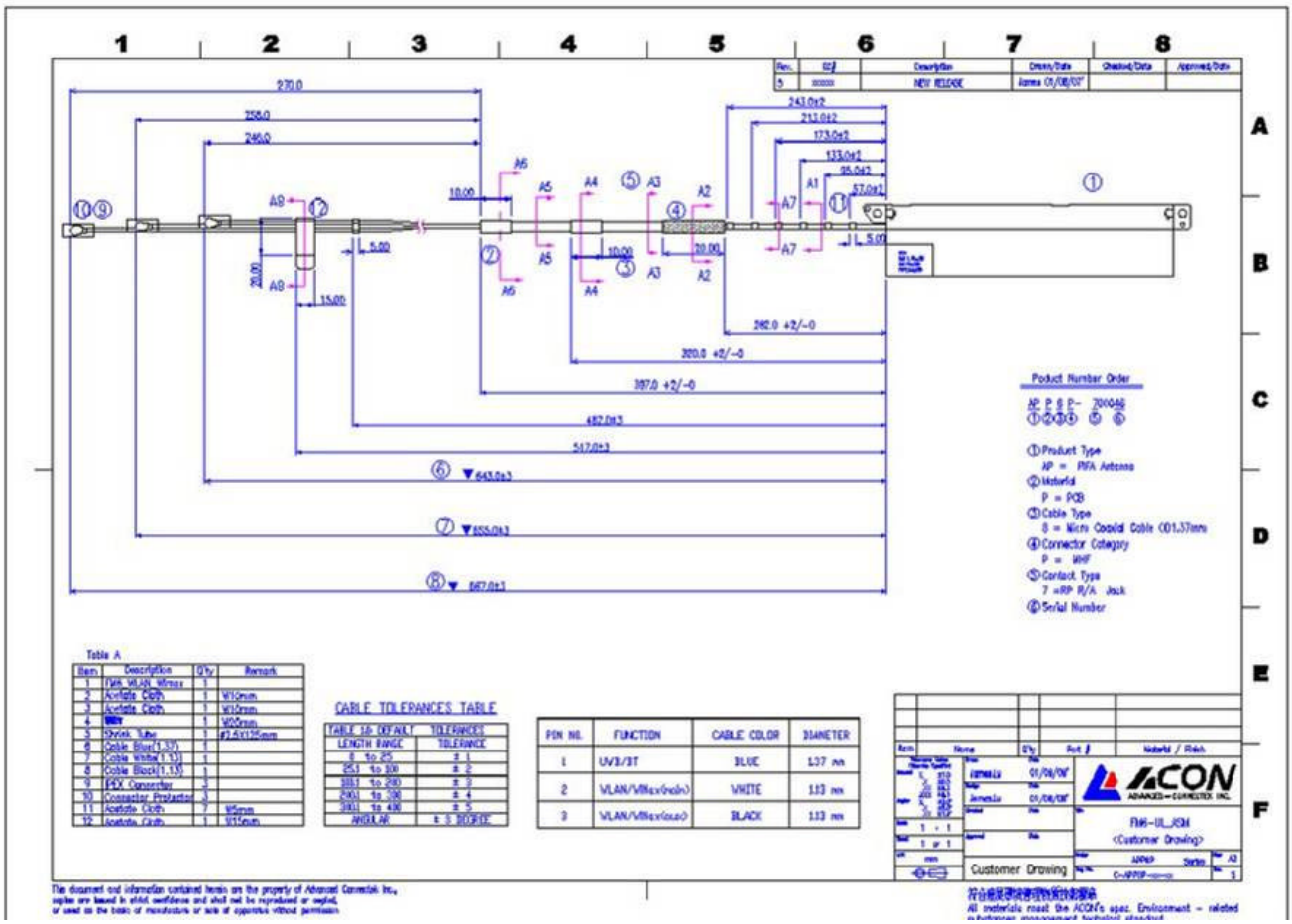
	Tx1 antenna		Tx2 Antenna		Tx3 (or Rx3) Antenna	
Frequency (MHz)	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)	Horizontal (dBi)	Vertical (dBi)
2412	-4.57	-1.46	-0.43	1.54	-2.15	-1.59
2437	-3.76	-1.33	-1.53	0.93	-1.93	-1.45
2462	-0.84	0.31	-2.33	0.79	-2.54	-1.78
5150	-3.08	-0.81	-4.01	-0.11	-2.89	-1.74
5350	-4.24	-1.32	-3.52	-2.48	-0.83	-0.69
5470	-4.93	-1.10	-5.30	-1.83	-0.79	-0.36
5725	-3.42	-1.70	-3.85	-1.96	-2.73	0.39
5875	-3.41	-1.05	-2.59	-0.57	-1.14	-0.80

- **Antenna Peak Gain required being test in system basis.**
- **1E frame contend absolutely peak antenna gain include H/V**
- **If Rx3 only (3rd antenna receives only, e.g. for 4965AGN) then the information is not required for Rx3.**

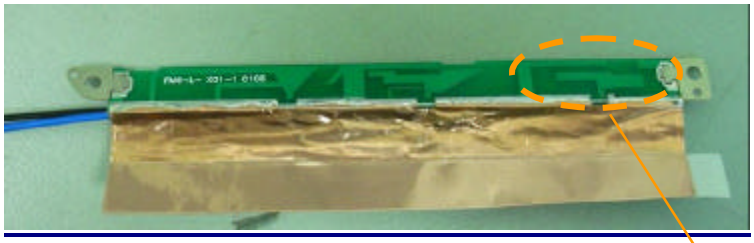
Section 2. Dimensioned Photos or Drawings of Antennas

nclude a dimensioned photo and dimensioned drawing of Tx1 antenna here.

Tx1 Antenna Dimensioned Drawing:



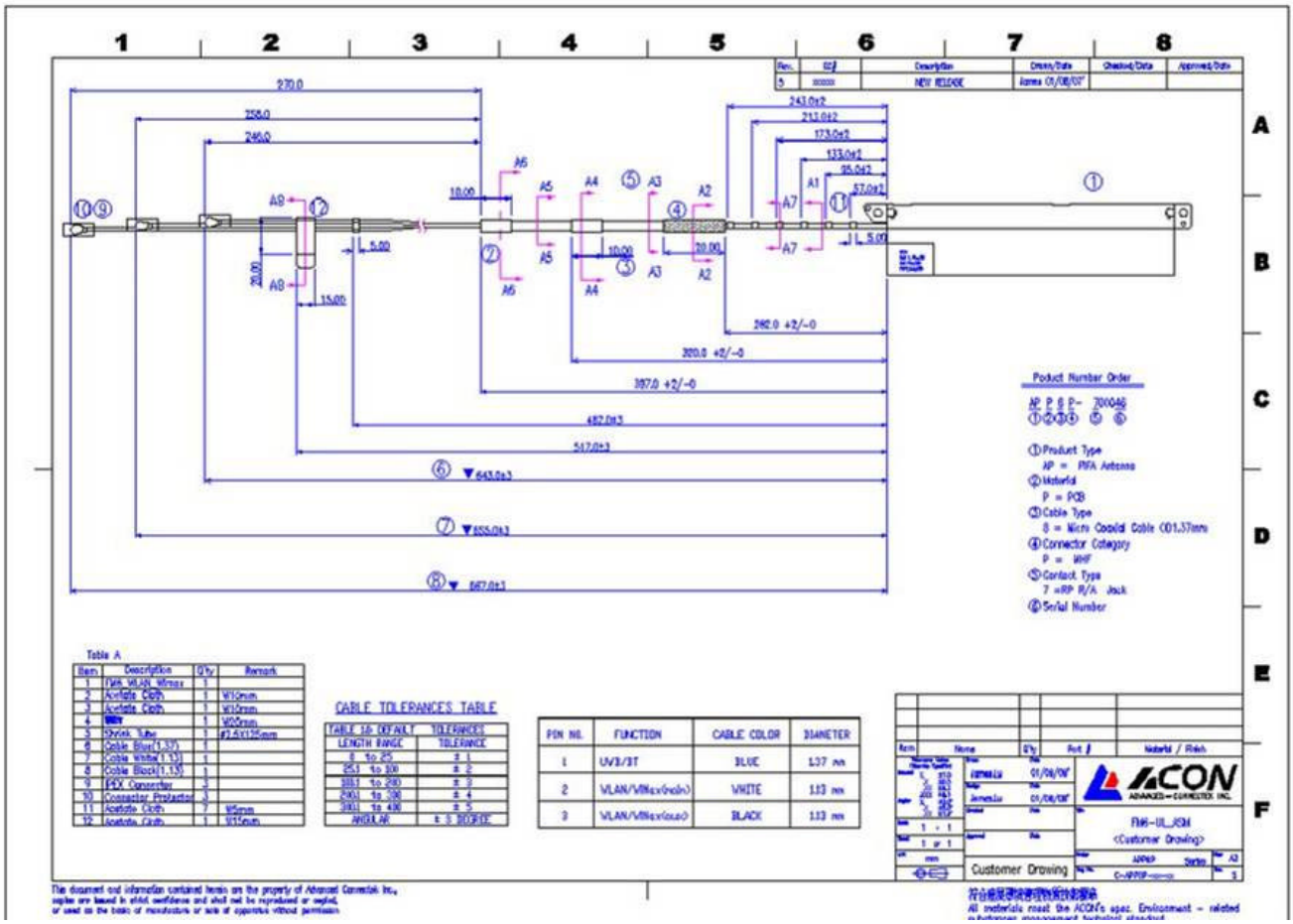
Tx1 Antenna Photo:



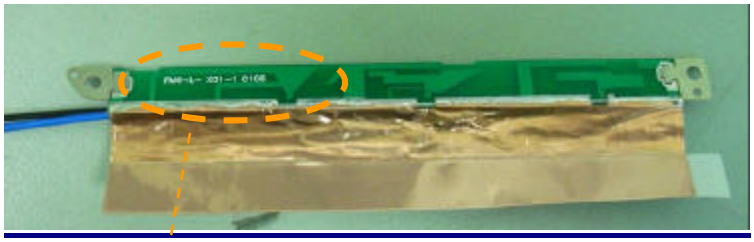
Tx1 Antenna

nclude a dimensioned photo and dimensioned drawing of Tx2 antenna here.

Tx2 Antenna Dimensioned Drawing:



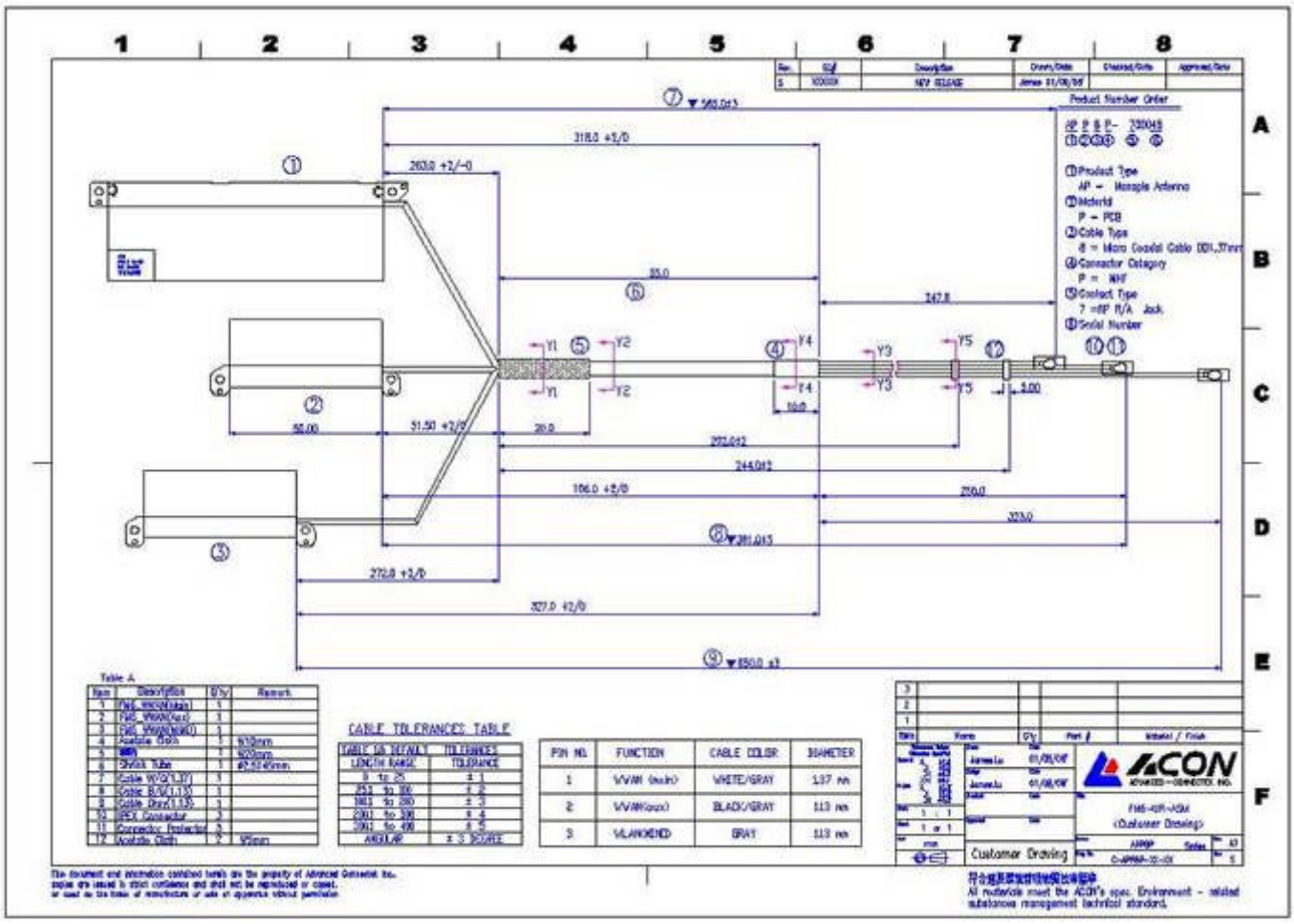
Tx2 Antenna Photo:



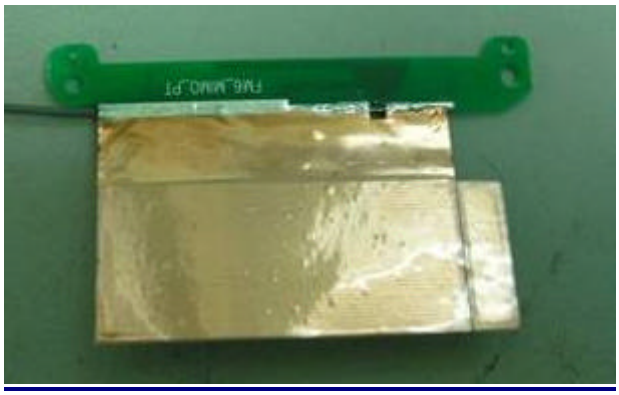
Tx2 Antenna

nclude a dimensioned photo and dimensioned drawing of Tx3 (or Rx3) antenna ıere.

Tx3 (or Rx3) Antenna Dimensioned Drawing:



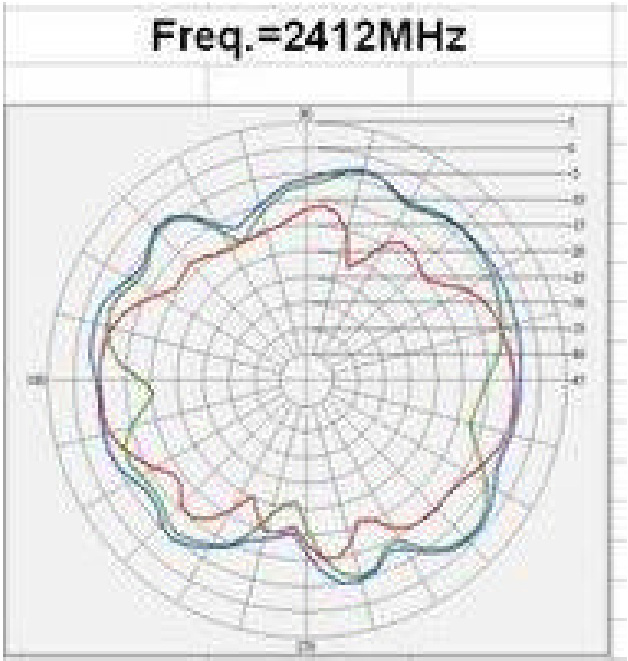
Tx3 (or Rx3) Antenna Photo:



Section 3. Radiation characteristics of antennae Loaded in Host Platform

2400-2500MHz radiation characteristic

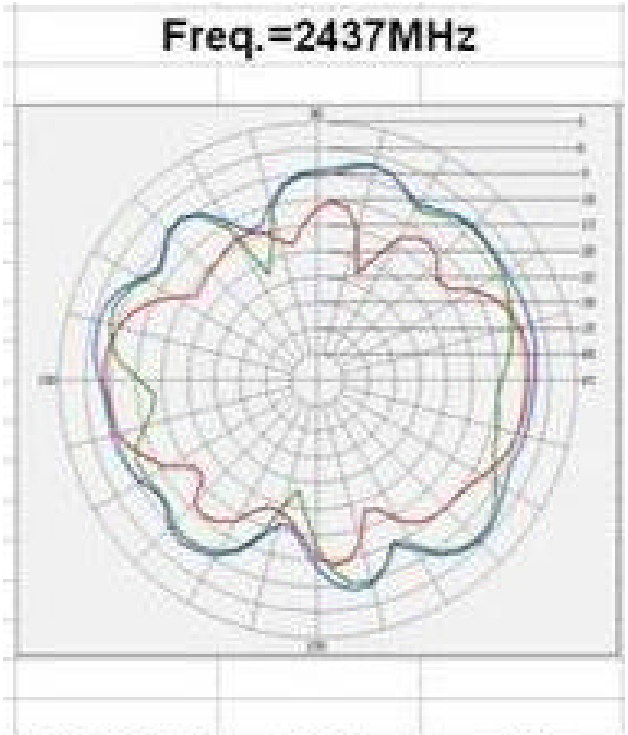
Tx1 antenna: 2412 MHz



H-Pol. (Peak.)	-4.57	dBi
V-Pol. (Peak.)	-1.46	dBi
H+V. (Peak.)	-0.87	dBi
H-Pol. (Avg.)	-9.35	dBi
V-Pol. (Avg.)	-6.46	dBi
H+V. (Avg.)	-4.66	dBi

Center Frequency	2412 MHz
Horizontal (dBi) peak	-4.57
Vertical (dBi) peak	-1.46
H+V (dBi) avg.	-4.66

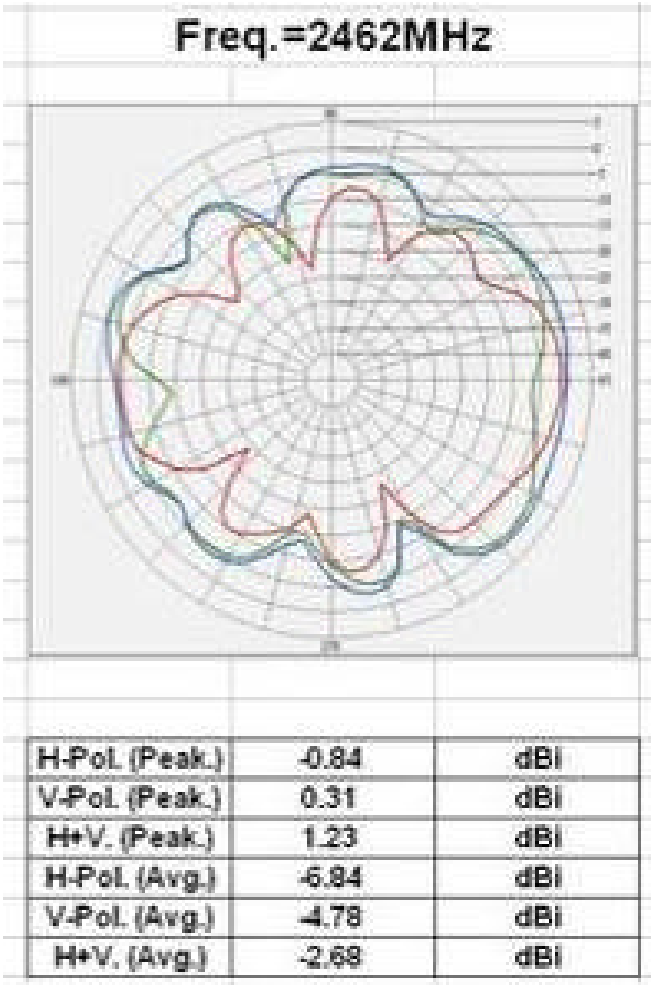
Tx1 antenna: 2437 MHz



H-Pol. (Peak.)	-3.76	dBi
V-Pol. (Peak.)	-1.33	dBi
H+V. (Peak.)	-0.75	dBi
H-Pol. (Avg.)	-8.80	dBi
V-Pol. (Avg.)	-5.86	dBi
H+V. (Avg.)	-4.08	dBi

Center Frequency	2437 MHz
Horizontal (dBi) peak	-3.76
Vertical (dBi) peak	-1.33
H+V (dBi) avg.	-4.08

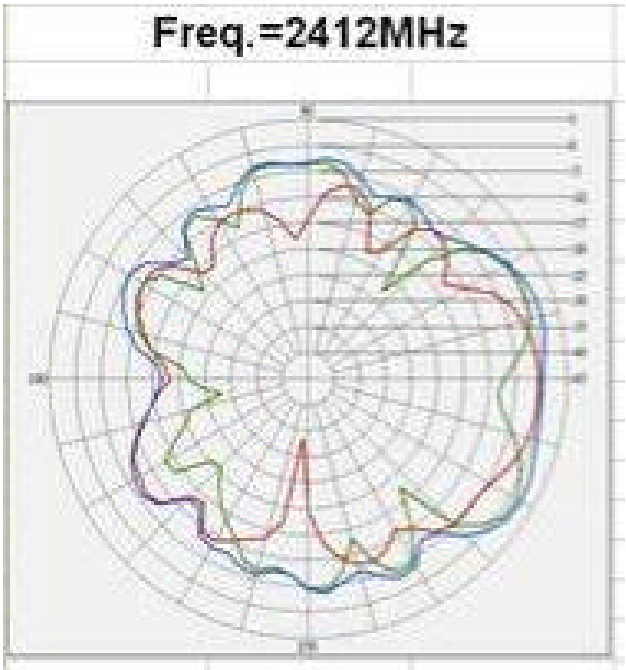
Tx1 antenna: 2462 MHz



H-Pol. (Peak.)	-0.84	dBi
V-Pol. (Peak.)	0.31	dBi
H+V. (Peak.)	1.23	dBi
H-Pol. (Avg.)	-6.84	dBi
V-Pol. (Avg.)	-4.78	dBi
H+V. (Avg.)	-2.68	dBi

Center Frequency	2462 MHz
Horizontal (dBi) peak	-0.84
Vertical (dBi) peak	0.31
H+V (dBi) avg.	-2.68

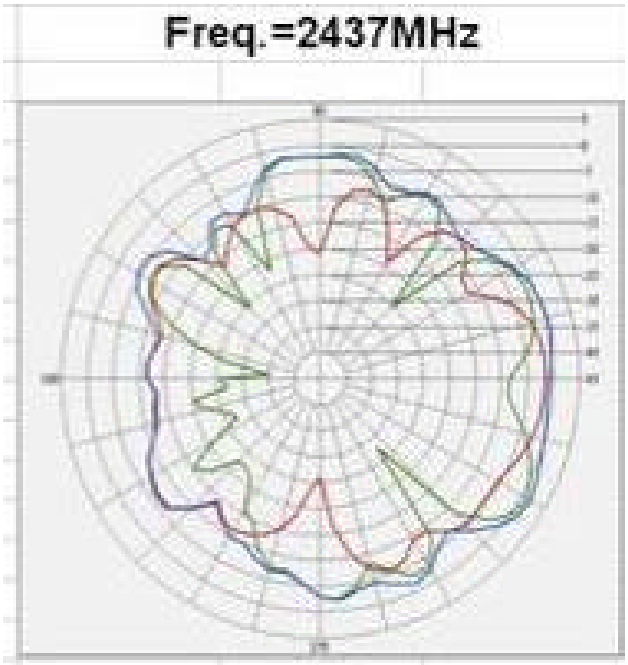
Tx2 antenna: 2412 MHz



H-Pol. (Peak.)	-0.43	dBi
V-Pol. (Peak.)	1.54	dBi
H+V. (Peak.)	2.50	dBi
H-Pol. (Avg.)	-7.12	dBi
V-Pol. (Avg.)	-5.65	dBi
H+V. (Avg.)	-3.31	dBi

Center Frequency	2412 MHz
Horizontal (dBi) peak	-0.43
Vertical (dBi) peak	1.54
H+V (dBi) avg.	-3.31

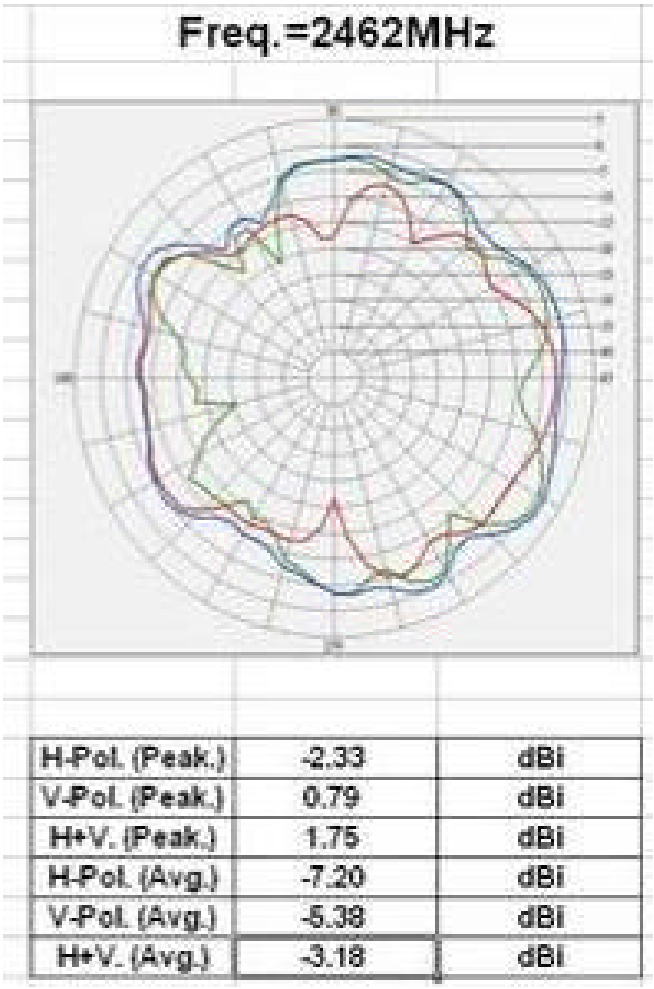
Tx2 antenna: 2437 MHz



H-Pol. (Peak.)	-1.53	dBi
V-Pol. (Peak.)	0.93	dBi
H+V. (Peak.)	1.84	dBi
H-Pol. (Avg.)	-7.61	dBi
V-Pol. (Avg.)	-5.79	dBi
H+V. (Avg.)	-3.60	dBi

Center Frequency	2437MHz
Horizontal (dBi) peak	-1.53
Vertical (dBi) peak	0.93
H+V (dBi) avg.	-3.60

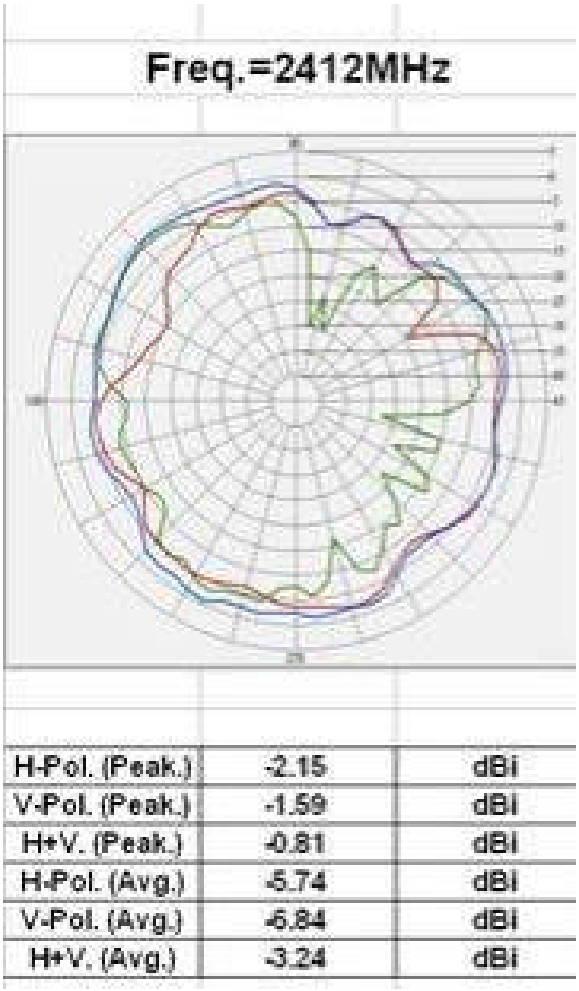
Tx2 antenna: 2462 MHz



H-Pol. (Peak.)	-2.33	dBi
V-Pol. (Peak.)	0.79	dBi
H+V. (Peak.)	1.75	dBi
H-Pol. (Avg.)	-7.20	dBi
V-Pol. (Avg.)	-5.38	dBi
H+V. (Avg.)	-3.18	dBi

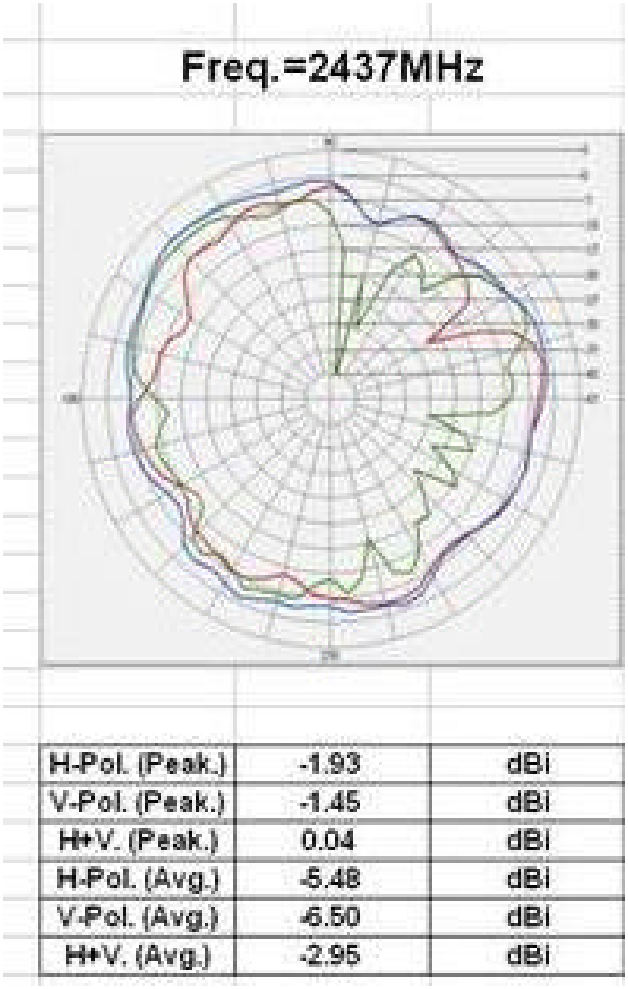
Center Frequency	2462MHz
Horizontal (dBi) peak	-2.33
Vertical (dBi) peak	0.79
H+V (dBi) avg.	-3.18

Tx3 (or Rx3) antenna: 2412 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



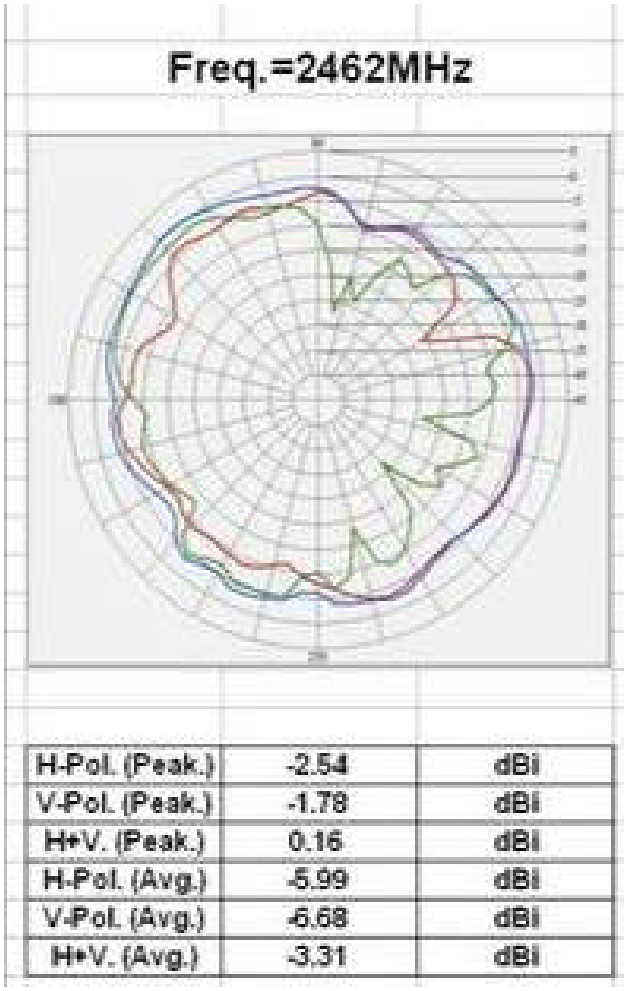
Center Frequency	2412MHz
Horizontal (dBi) peak	-2.15
Vertical (dBi) peak	-1.59
H+V (dBi) avg.	-3.24

Tx3 (or Rx3) antenna: 2437 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



Center Frequency	2437MHz
Horizontal (dBi) peak	-1.93
Vertical (dBi) peak	-1.45
H+V (dBi) avg.	-2.95

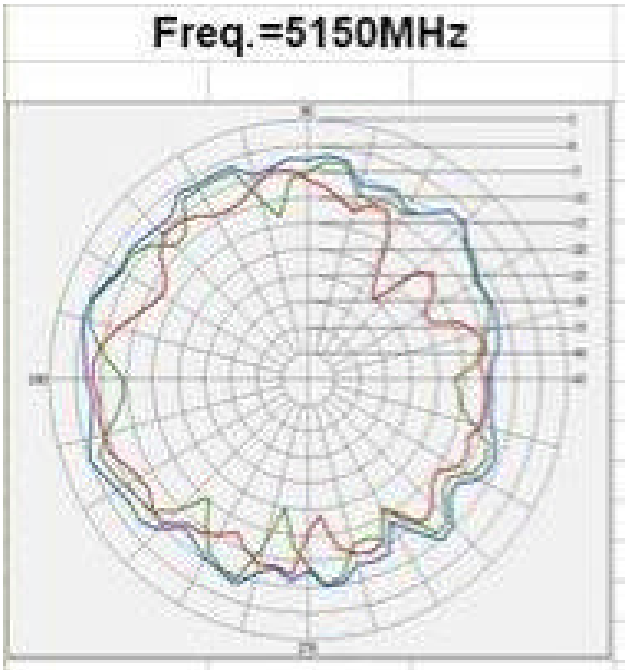
Tx3 (or Rx3) antenna: 2462 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



Center Frequency	2462MHz
Horizontal (dBi) peak	-2.54
Vertical (dBi) peak	-1.78
H+V (dBi) avg.	-3.31

5150-5350 MHz radiation characteristic

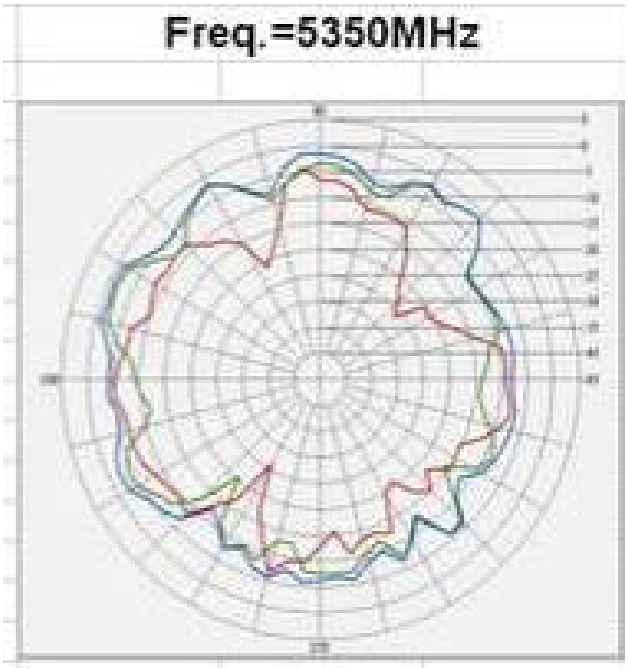
Tx1 antenna: 5150 MHz



H-Pol. (Peak.)	-3.08	dBi
V-Pol. (Peak.)	-0.81	dBi
H+V. (Peak.)	-0.03	dBi
H-Pol. (Avg.)	-8.42	dBi
V-Pol. (Avg.)	-6.06	dBi
H+V. (Avg.)	-4.07	dBi

Center Frequency	5150MHz
Horizontal (dBi) peak	-3.08
Vertical (dBi) peak	-0.81
H+V (dBi) avg.	-4.07

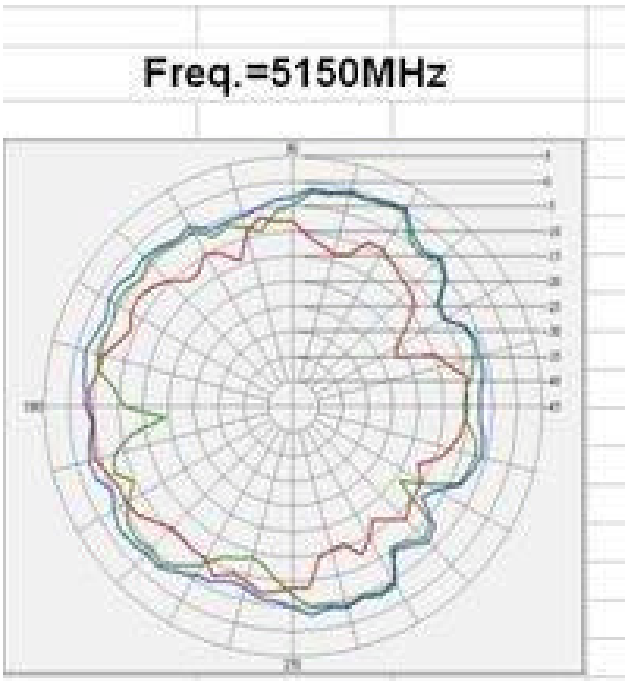
Tx2 antenna: 5350 MHz



H-Pol. (Peak.)	-4.24	dBi
V-Pol. (Peak.)	-1.32	dBi
H+V. (Peak.)	-1.11	dBi
H-Pol. (Avg.)	-10.02	dBi
V-Pol. (Avg.)	-6.46	dBi
H+V. (Avg.)	-4.88	dBi

Center Frequency	5350MHz
Horizontal (dBi) peak	-4.24
Vertical (dBi) peak	-1.32
H+V (dBi) avg.	-4.88

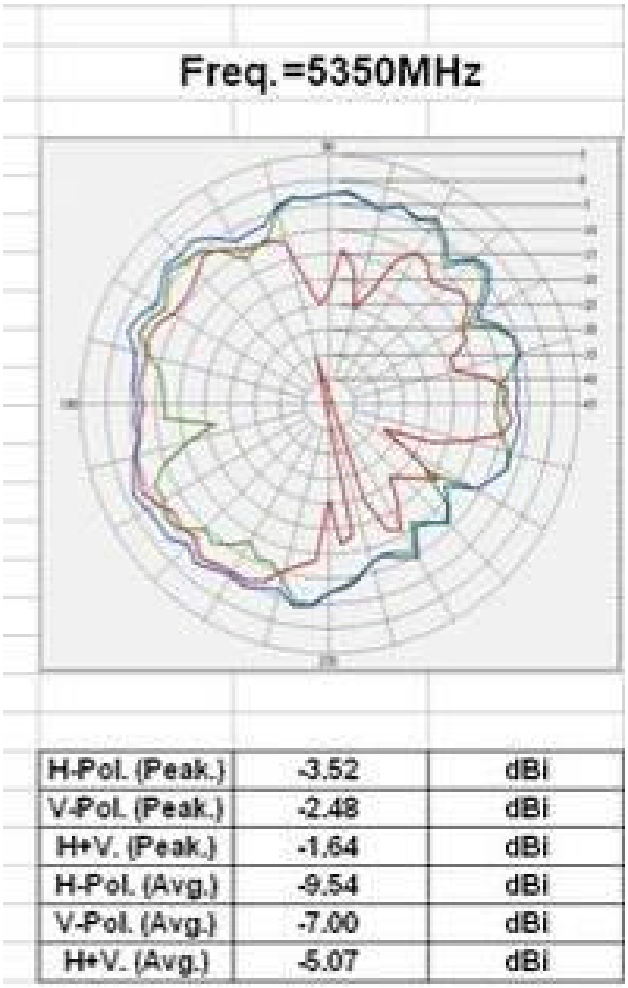
Tx2 antenna: 5150 MHz



H-Pol. (Peak.)	-4.01	dBi
V-Pol. (Peak.)	-0.11	dBi
H+V. (Peak.)	0.43	dBi
H-Pol. (Avg.)	-9.14	dBi
V-Pol. (Avg.)	-5.71	dBi
H+V. (Avg.)	-4.09	dBi

Center Frequency	5150MHz
Horizontal (dBi) peak	-4.01
Vertical (dBi) peak	-0.11
H+V (dBi) avg.	-4.09

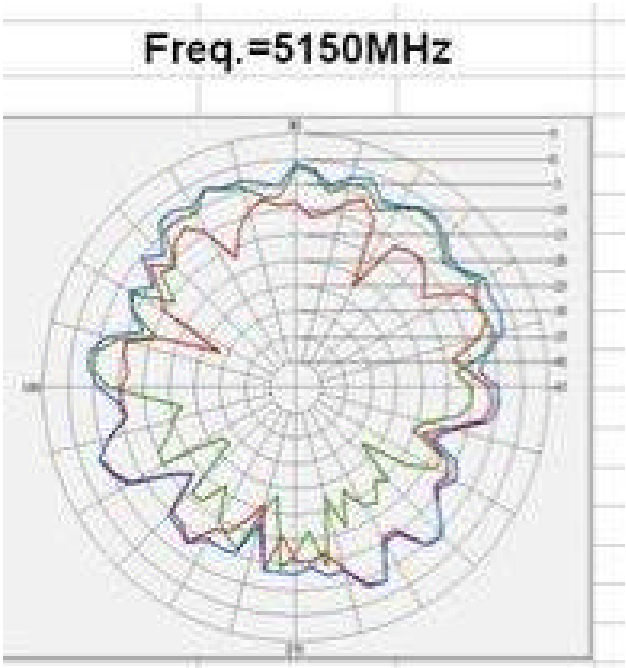
Tx2 antenna: 5350 MHz



H-Pol. (Peak.)	-3.52	dBi
V-Pol. (Peak.)	-2.48	dBi
H+V. (Peak.)	-1.64	dBi
H-Pol. (Avg.)	-9.54	dBi
V-Pol. (Avg.)	-7.00	dBi
H+V. (Avg.)	-5.07	dBi

Center Frequency	5350MHz
Horizontal (dBi) peak	-3.52
Vertical (dBi) peak	-2.48
H+V (dBi) avg.	-5.07

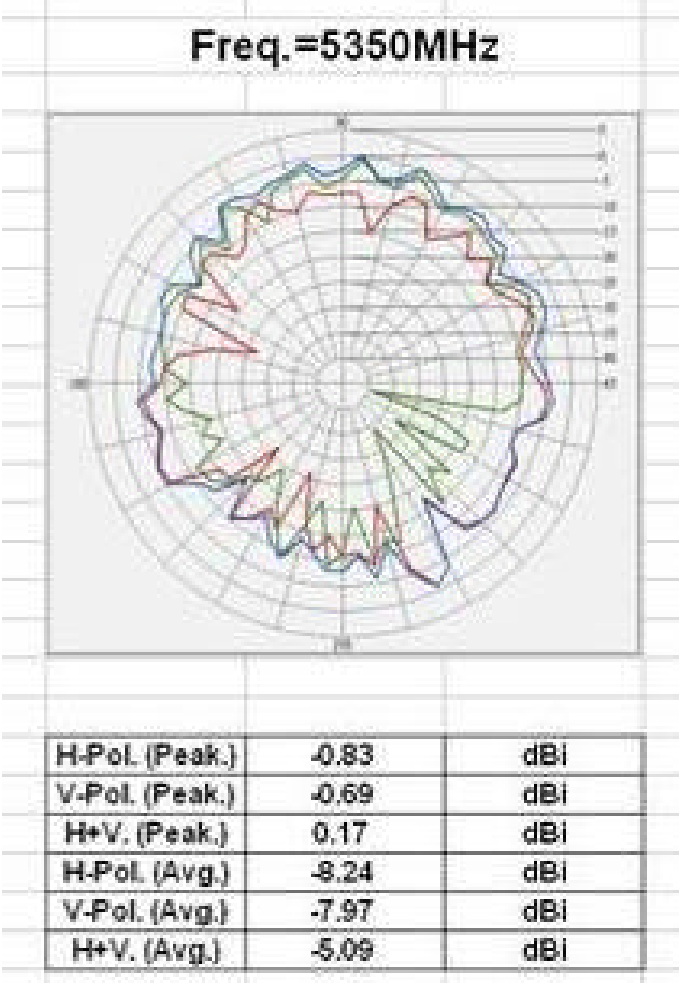
Tx3 (or Rx3) antenna: 5150 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



H-Pol. (Peak.)	-2.89	dBi
V-Pol. (Peak.)	-1.74	dBi
H+V. (Peak.)	-0.90	dBi
H-Pol. (Avg.)	-8.81	dBi
V-Pol. (Avg.)	-7.74	dBi
H+V. (Avg.)	-5.23	dBi

Center Frequency	5150MHz
Horizontal (dBi) peak	-2.89
Vertical (dBi) peak	-1.74
H+V (dBi) avg.	-5.23

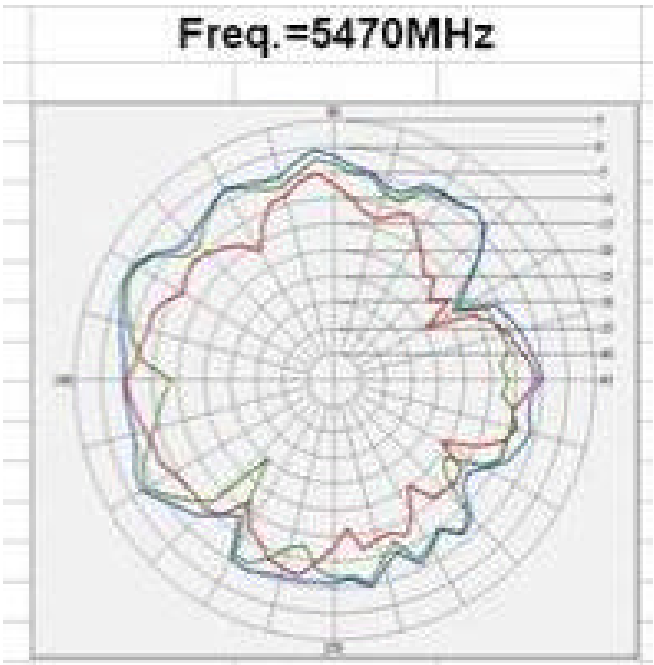
Tx3 (or Rx3) antenna: 5350 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



Center Frequency	5350MHz
Horizontal (dBi) peak	-0.83
Vertical (dBi) peak	-0.69
H+V (dBi) avg.	-5.09

5470-5725MHz radiation characteristic

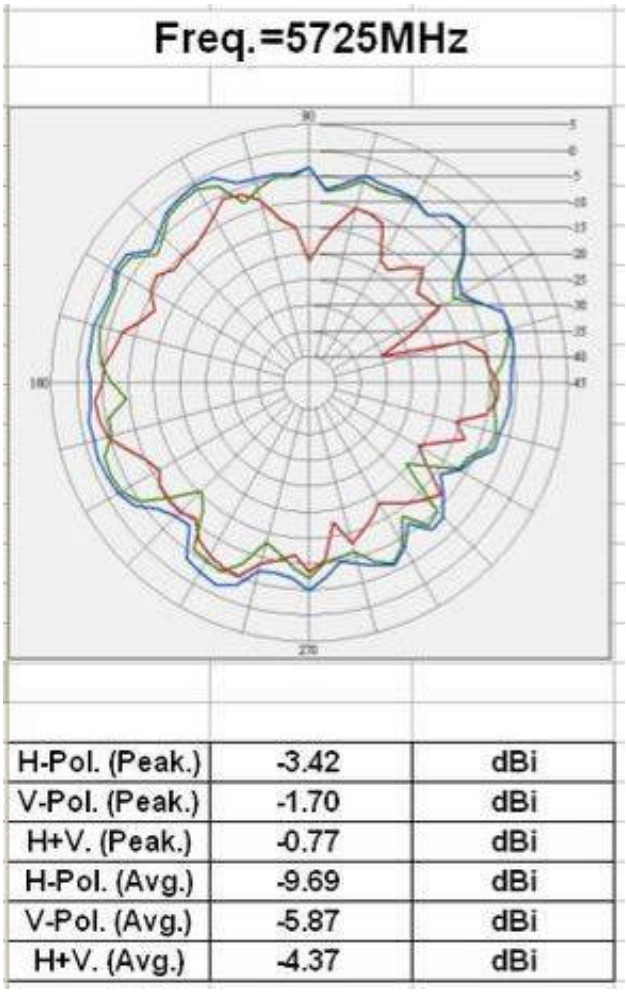
Tx1 antenna: 5470 MHz



H-Pol. (Peak.)	-4.93	dBi
V-Pol. (Peak.)	-1.10	dBi
H+V. (Peak.)	-0.46	dBi
H-Pol. (Avg.)	-9.93	dBi
V-Pol. (Avg.)	-6.59	dBi
H+V. (Avg.)	-4.94	dBi

Center Frequency	5470MHz
Horizontal (dBi) peak	-4.93
Vertical (dBi) peak	-1.10
H+V (dBi) avg.	-4.94

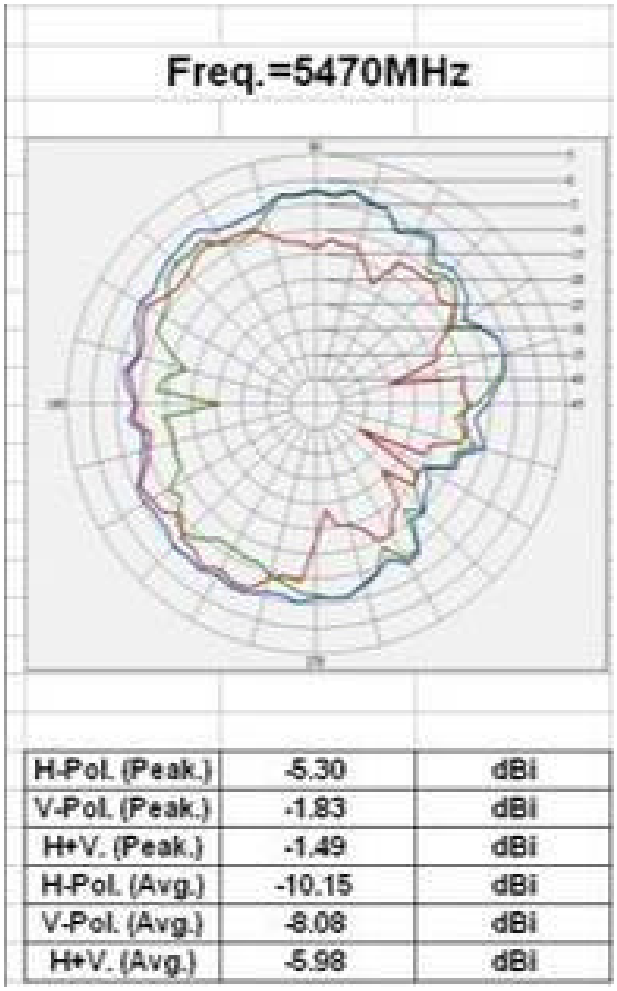
Tx1 antenna: 5725 MHz



H-Pol. (Peak.)	-3.42	dBi
V-Pol. (Peak.)	-1.70	dBi
H+V. (Peak.)	-0.77	dBi
H-Pol. (Avg.)	-9.69	dBi
V-Pol. (Avg.)	-5.87	dBi
H+V. (Avg.)	-4.37	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-3.42
Vertical (dBi) peak	-1.70
H+V (dBi) avg.	-4.37

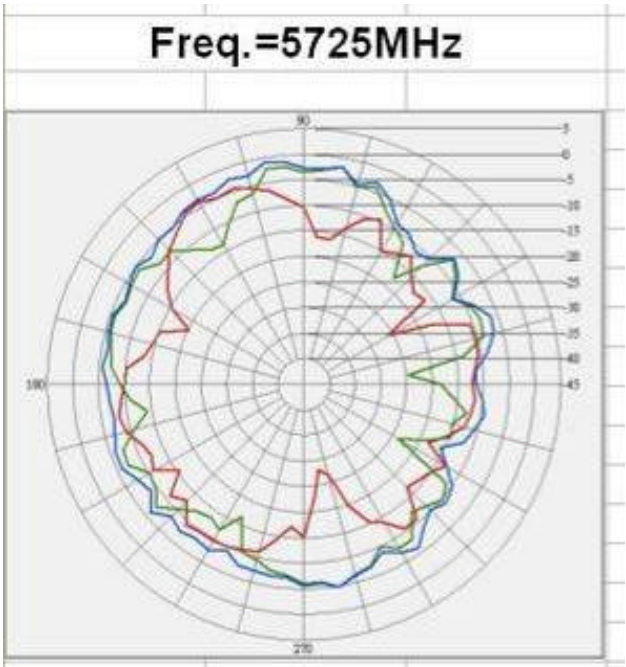
Tx2 antenna: 5470 MHz



H-Pol. (Peak.)	-5.30	dBi
V-Pol. (Peak.)	-1.83	dBi
H+V. (Peak.)	-1.49	dBi
H-Pol. (Avg.)	-10.15	dBi
V-Pol. (Avg.)	-8.08	dBi
H+V. (Avg.)	-5.98	dBi

Center Frequency	5470MHz
Horizontal (dBi) peak	-5.30
Vertical (dBi) peak	-1.83
H+V (dBi) avg.	-5.98

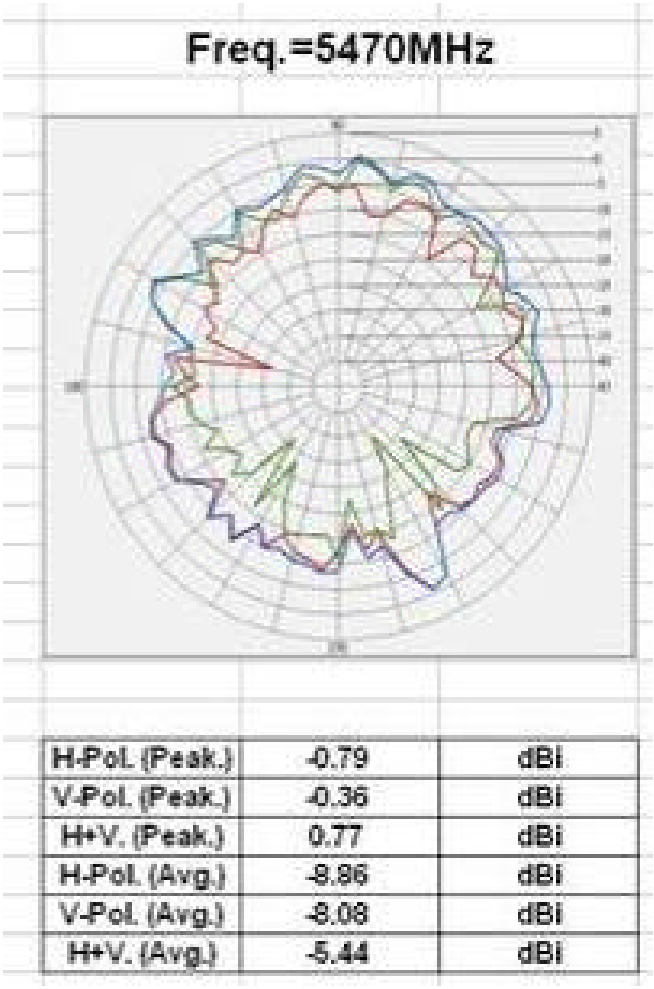
Tx2 antenna: 5725 MHz



H-Pol. (Peak.)	-3.85	dBi
V-Pol. (Peak.)	-1.96	dBi
H+V. (Peak.)	-0.98	dBi
H-Pol. (Avg.)	-10.76	dBi
V-Pol. (Avg.)	-8.03	dBi
H+V. (Avg.)	-6.18	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-3.85
Vertical (dBi) peak	-1.96
H+V (dBi) avg.	-6.18

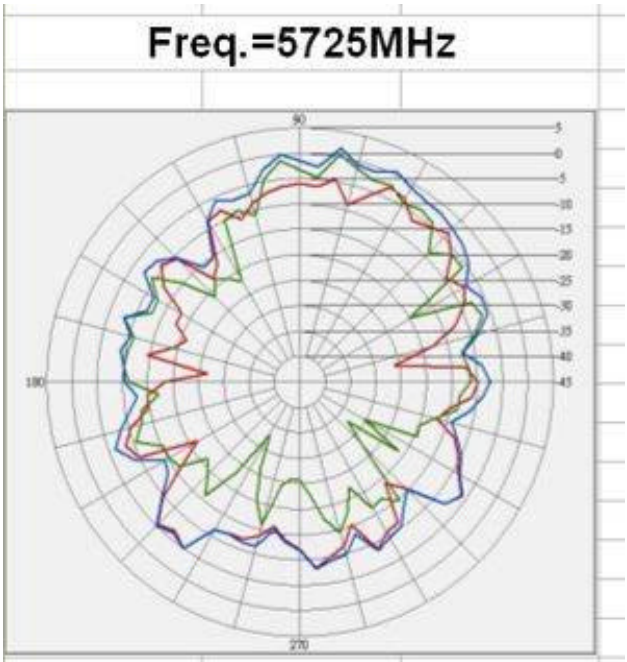
Tx3 (or Rx3): 5470 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



H-Pol. (Peak.)	-0.79	dBi
V-Pol. (Peak.)	-0.36	dBi
H+V. (Peak.)	0.77	dBi
H-Pol. (Avg.)	-8.86	dBi
V-Pol. (Avg.)	-8.08	dBi
H+V. (Avg.)	-5.44	dBi

Center Frequency	5470MHz
Horizontal (dBi) peak	-0.79
Vertical (dBi) peak	-0.36
H+V (dBi) avg.	-5.44

Tx3 (or Rx3) antenna: 5725 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)

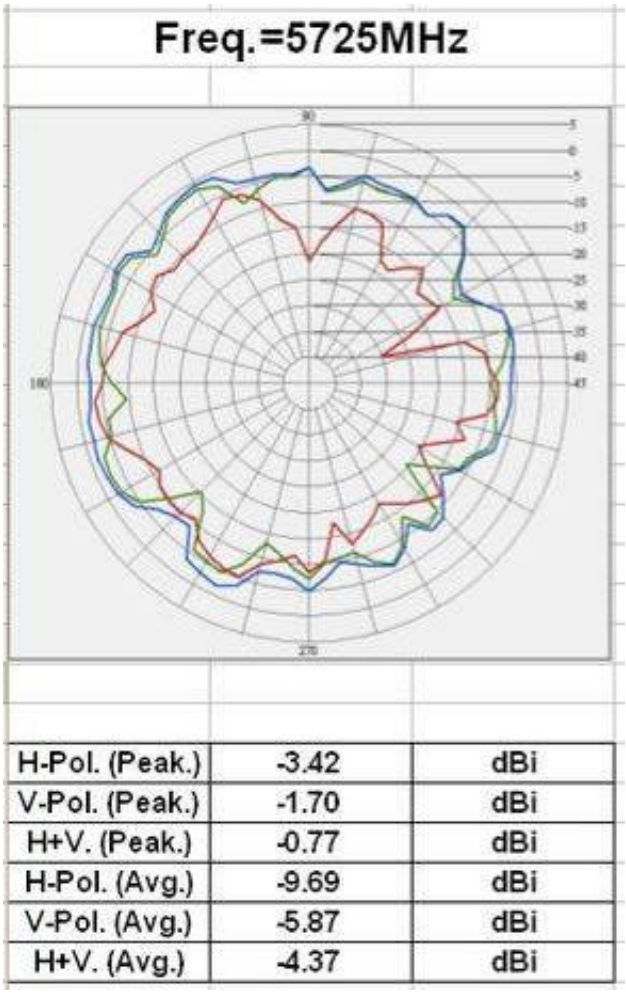


H-Pol. (Peak.)	-2.73	dBi
V-Pol. (Peak.)	0.39	dBi
H+V. (Peak.)	1.58	dBi
H-Pol. (Avg.)	-9.20	dBi
V-Pol. (Avg.)	-8.96	dBi
H+V. (Avg.)	-6.07	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-2.73
Vertical (dBi) peak	0.39
H+V (dBi) avg.	-6.07

5725-5850 MHz radiation characteristic

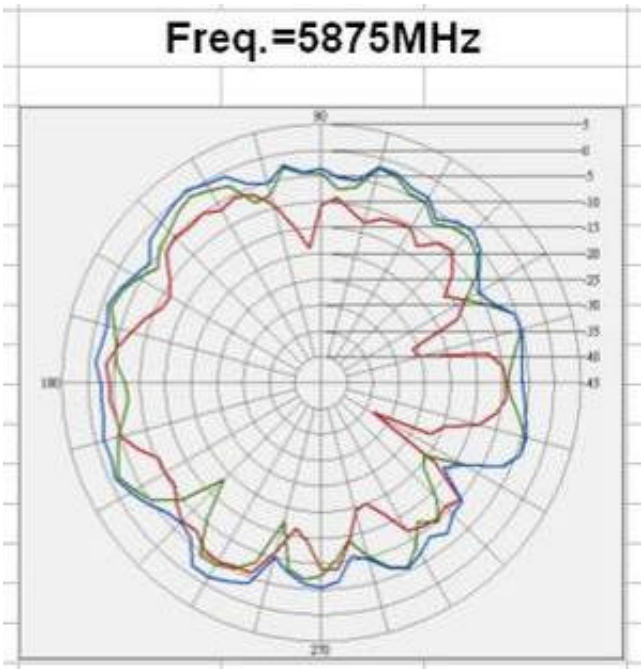
Tx1 antenna: 5725 MHz



H-Pol. (Peak.)	-3.42	dBi
V-Pol. (Peak.)	-1.70	dBi
H+V. (Peak.)	-0.77	dBi
H-Pol. (Avg.)	-9.69	dBi
V-Pol. (Avg.)	-5.87	dBi
H+V. (Avg.)	-4.37	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-3.42
Vertical (dBi) peak	-1.70
H+V (dBi) avg.	-4.37

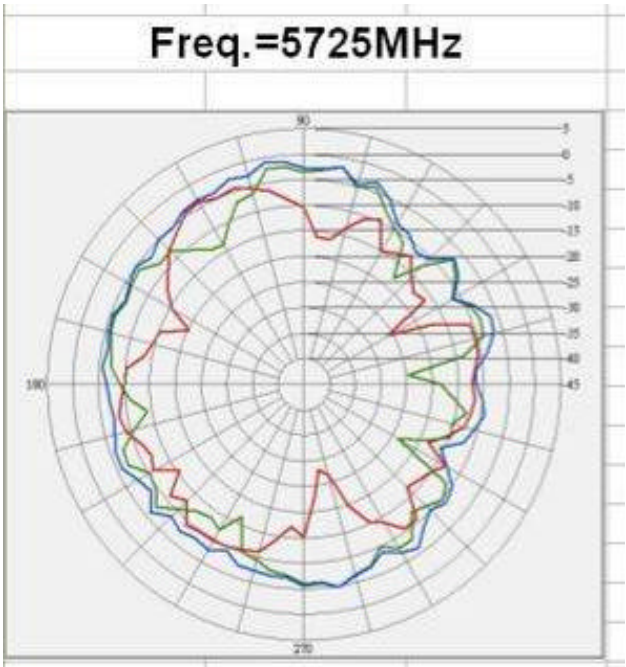
Tx1 antenna: 5875 MHz



H-Pol. (Peak.)	-3.41	dBi
V-Pol. (Peak.)	-1.05	dBi
H+V. (Peak.)	0.38	dBi
H-Pol. (Avg.)	-8.86	dBi
V-Pol. (Avg.)	-5.66	dBi
H+V. (Avg.)	-3.96	dBi

Center Frequency	5875MHz
Horizontal (dBi) peak	-3.41
Vertical (dBi) peak	-1.05
H+V (dBi) avg.	-3.96

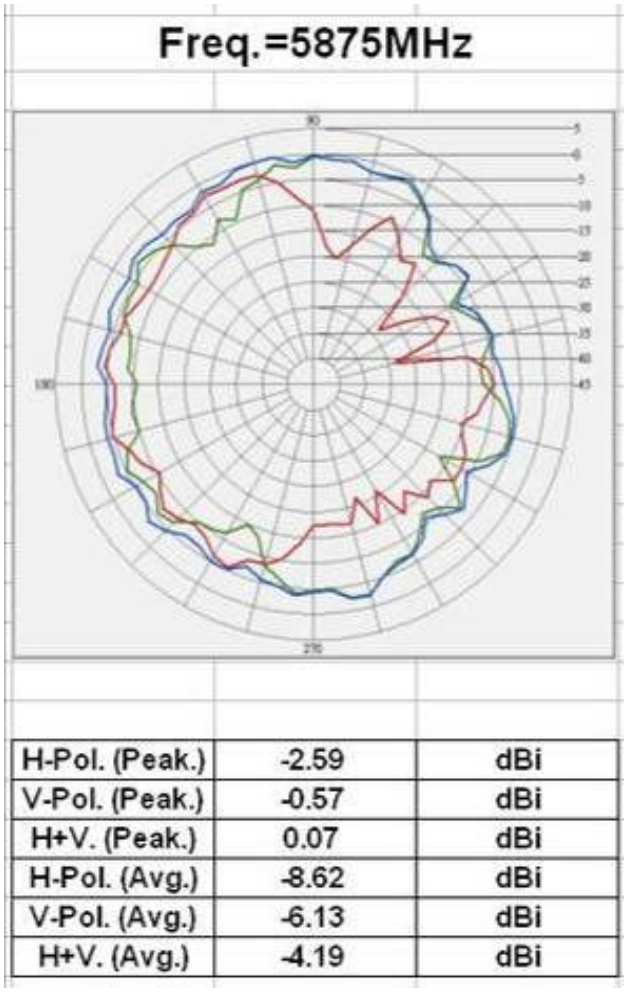
Γx2 antenna: 5725 MHz



H-Pol. (Peak.)	-3.85	dBi
V-Pol. (Peak.)	-1.96	dBi
H+V. (Peak.)	-0.98	dBi
H-Pol. (Avg.)	-10.76	dBi
V-Pol. (Avg.)	-8.03	dBi
H+V. (Avg.)	-6.18	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-3.85
Vertical (dBi) peak	-1.96
H+V (dBi) avg.	-6.18

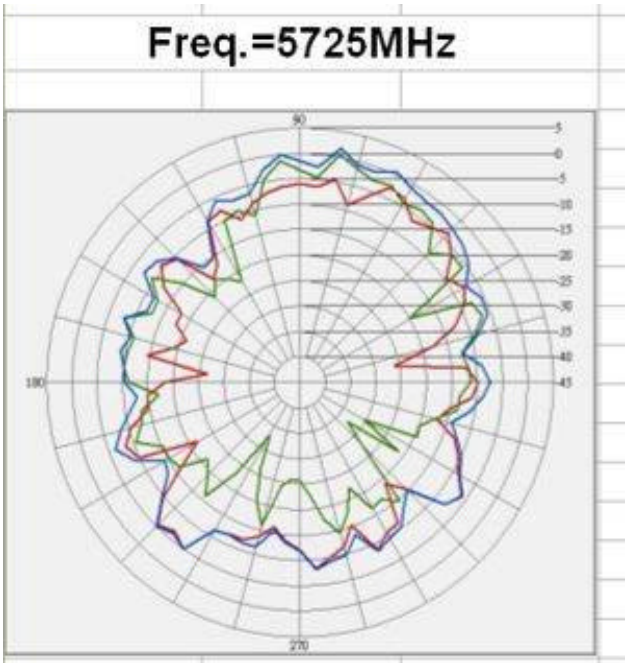
Tx2 antenna: 5875 MHz



H-Pol. (Peak.)	-2.59	dBi
V-Pol. (Peak.)	-0.57	dBi
H+V. (Peak.)	0.07	dBi
H-Pol. (Avg.)	-8.62	dBi
V-Pol. (Avg.)	-6.13	dBi
H+V. (Avg.)	-4.19	dBi

Center Frequency	5875MHz
Horizontal (dBi) peak	-2.59
Vertical (dBi) peak	-0.57
H+V (dBi) avg.	-4.19

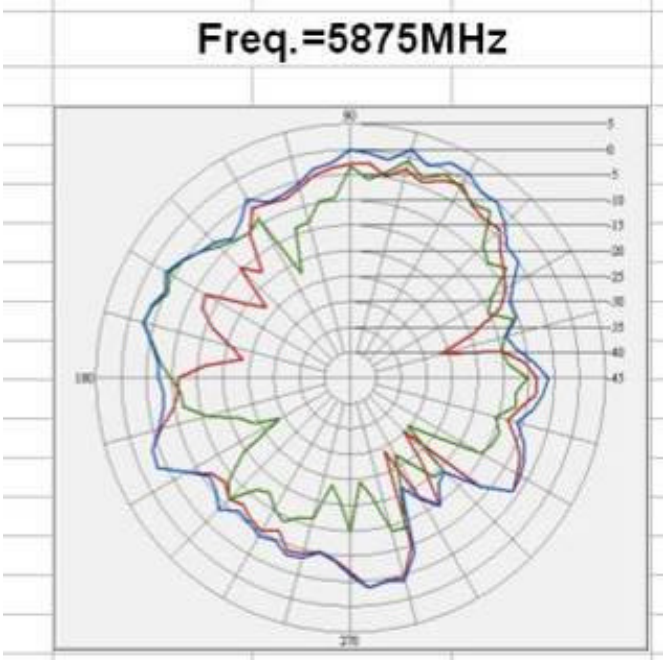
Tx3 (or Rx3) antenna: 5725 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 4965AGN)



H-Pol. (Peak.)	-2.73	dBi
V-Pol. (Peak.)	0.39	dBi
H+V. (Peak.)	1.58	dBi
H-Pol. (Avg.)	-9.20	dBi
V-Pol. (Avg.)	-8.96	dBi
H+V. (Avg.)	-6.07	dBi

Center Frequency	5725MHz
Horizontal (dBi) peak	-2.73
Vertical (dBi) peak	0.39
H+V (dBi) avg.	-6.07

Tx3 (or Rx3) antenna: 5875 MHz (Plot is not required if 3rd Antenna is receive only e.g. Rx3 for 1965AGN)



H-Pol. (Peak.)	-1.14	dBi
V-Pol. (Peak.)	-0.80	dBi
H+V. (Peak.)	1.55	dBi
H-Pol. (Avg.)	-7.51	dBi
V-Pol. (Avg.)	-8.51	dBi
H+V. (Avg.)	-4.97	dBi

Center Frequency	5875MHz
Horizontal (dBi) peak	-1.14
Vertical (dBi) peak	-0.80
H+V (dBi) avg.	-4.97

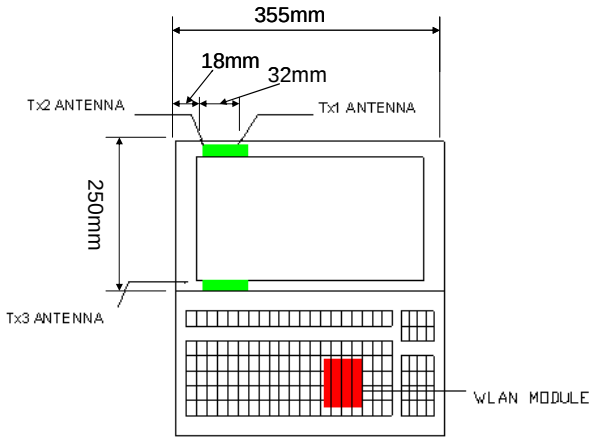
Section 4. Host Platform Information

OEM / ODM Host platform: Dell Hepburn

Rating Label Photo:

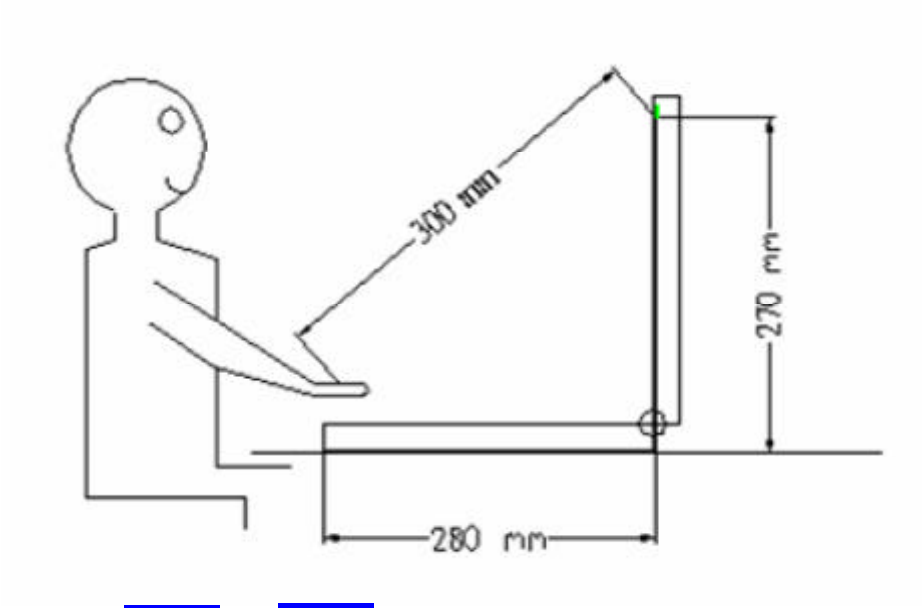
Section 5. Antenna Host Platform Location Information

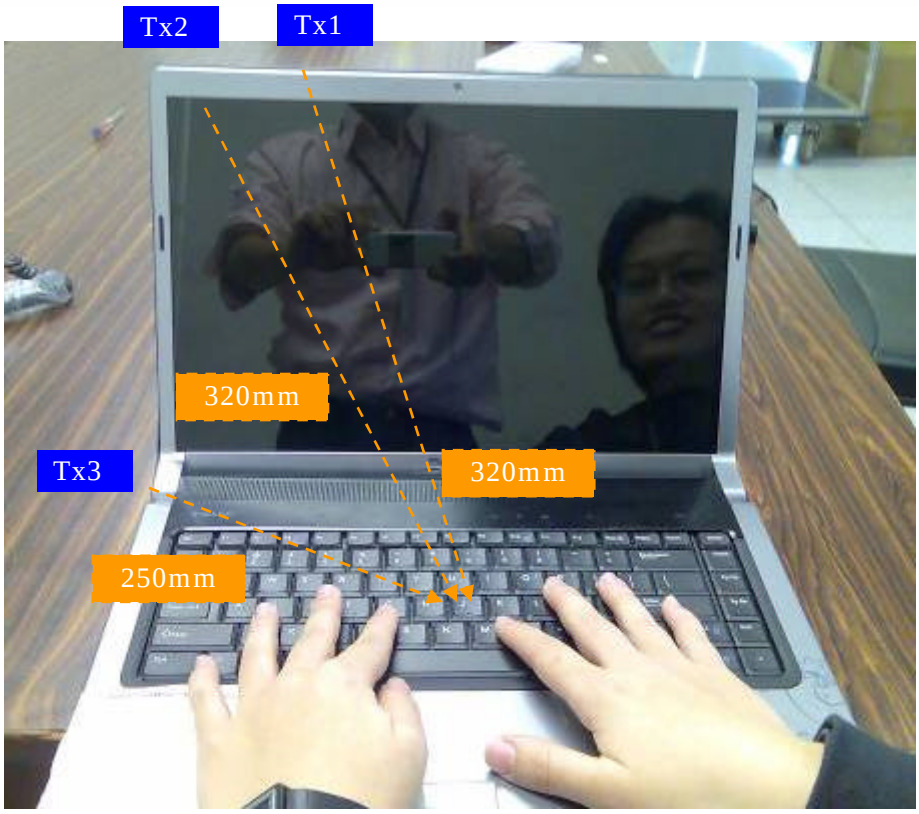
nclude a **dimensioned photo or dimensioned drawing** of Tx1, Tx2 and Tx3 antenna)lacements. (Not applicable for receive-only antenna e.g. Rx3 for 4965AGN)



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)

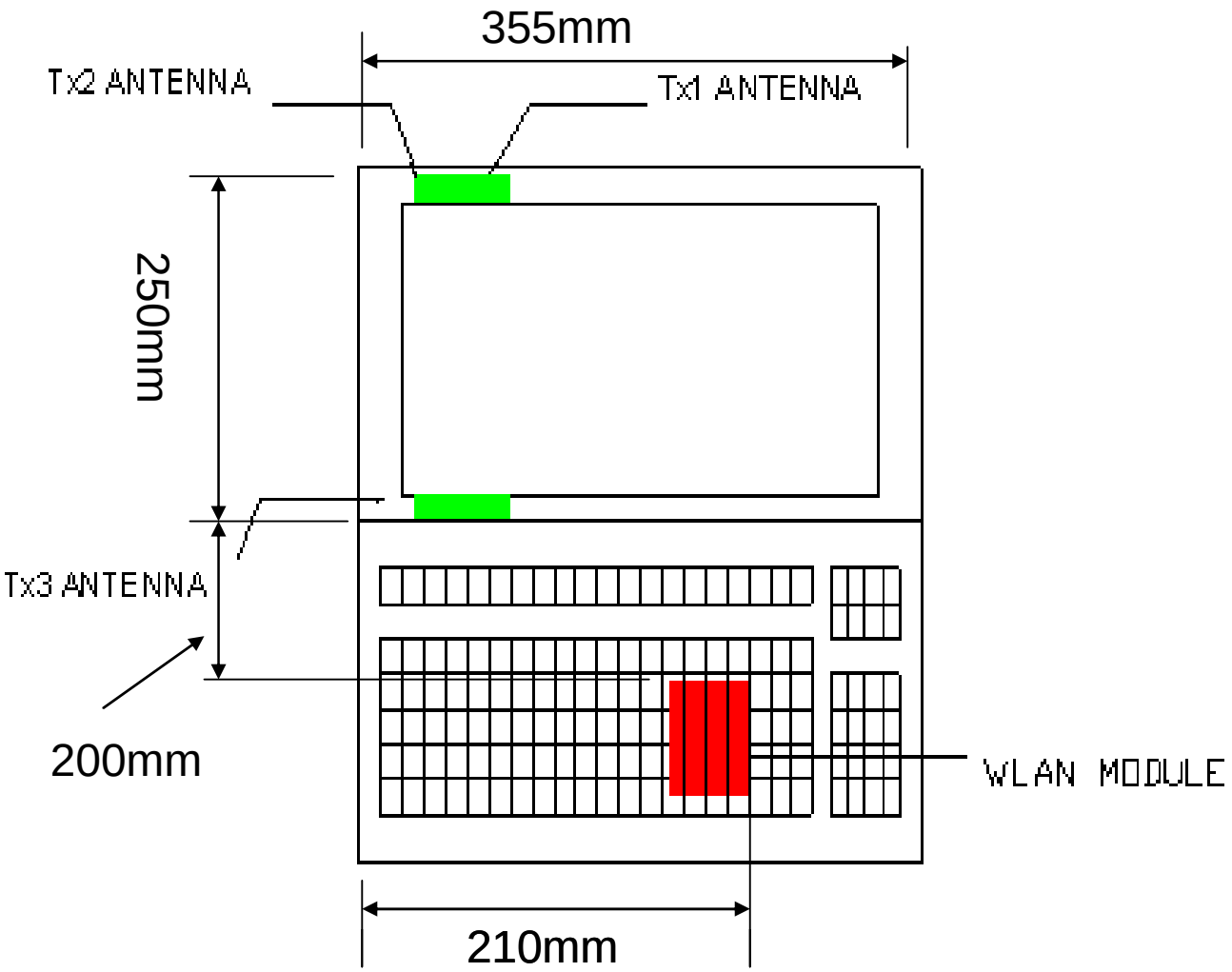




Section 7. Diagram Example of Co-Location Antenna Separation

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,..

Note: Due to the evolving rules regarding co-location, each platform will need to be reviewed on a case by case basis)



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						
Brazil						
Indonesia						
Israel						
Malaysia						
Mexico						
Singapore						Telecommunication Equipment Dealer License Required
South Africa						
USA, Canada						