

WE620443-TO Antenna Test Report

Test personnel : Dixon Luo

Test date : 19th Sep, 2023



Revision History



Revision	Date	Note
V1.0	2023.09.19	R0A Report with isolator

Agenda

- **Antenna test equipment calibration Date**
- **Test setup description**
- **Antenna Return Loss & Isolation**
- **Antenna radiation pattern**
 - **2G Ant. @2450MHz**
 - **5G Ant. @5500MHz**
- **Antenna Efficiency & Gain List**
- **Antenna Drawing**
- **Summary**

Antenna test equipment calibration Date



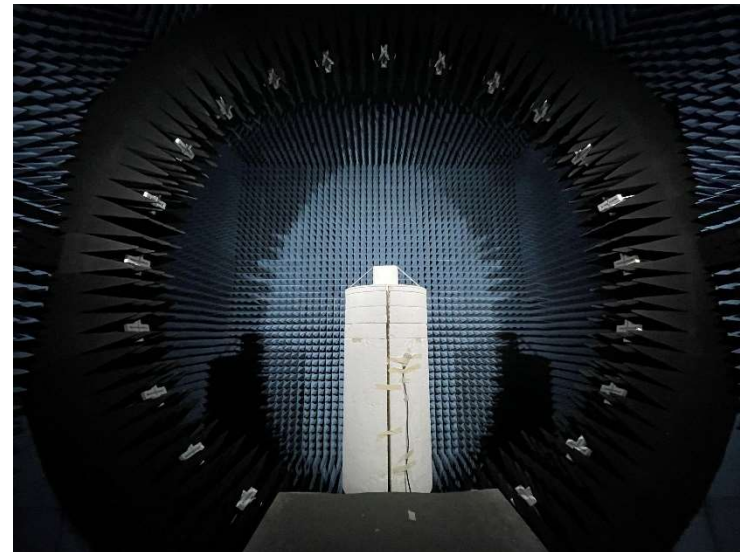
Antenna test equipment calibration Date

- Keysight E5080B ENA Vector Network Analyzer



regular calibration on 15th/Aug./2023

- ETS LINDGREN OTA Chamber (AMS-8923-195-G)



regular calibration on 18th/Aug./2023

Test Setup Description



Test Setup Description

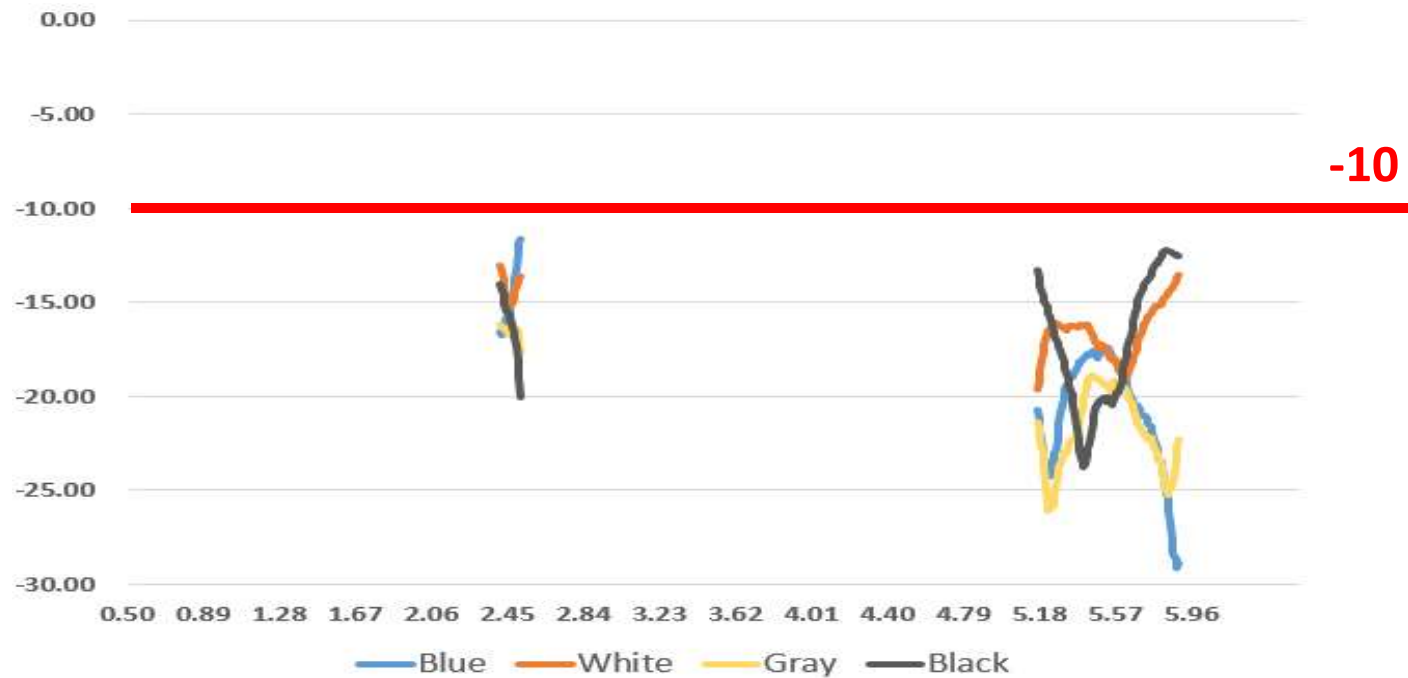
- Place the device at the center of the chamber.
- Connect the antenna cable to RF cable of the chamber
- Run IETS-Lindgren SW test measurement
- Get 3D data in 2.8125 degree step from phi 0° ~ 360° and theta -90° ~ $+90^{\circ}$, including efficiency, peak gain, 2D & 3D radiation pattern.

Antenna Return Loss & Isolation



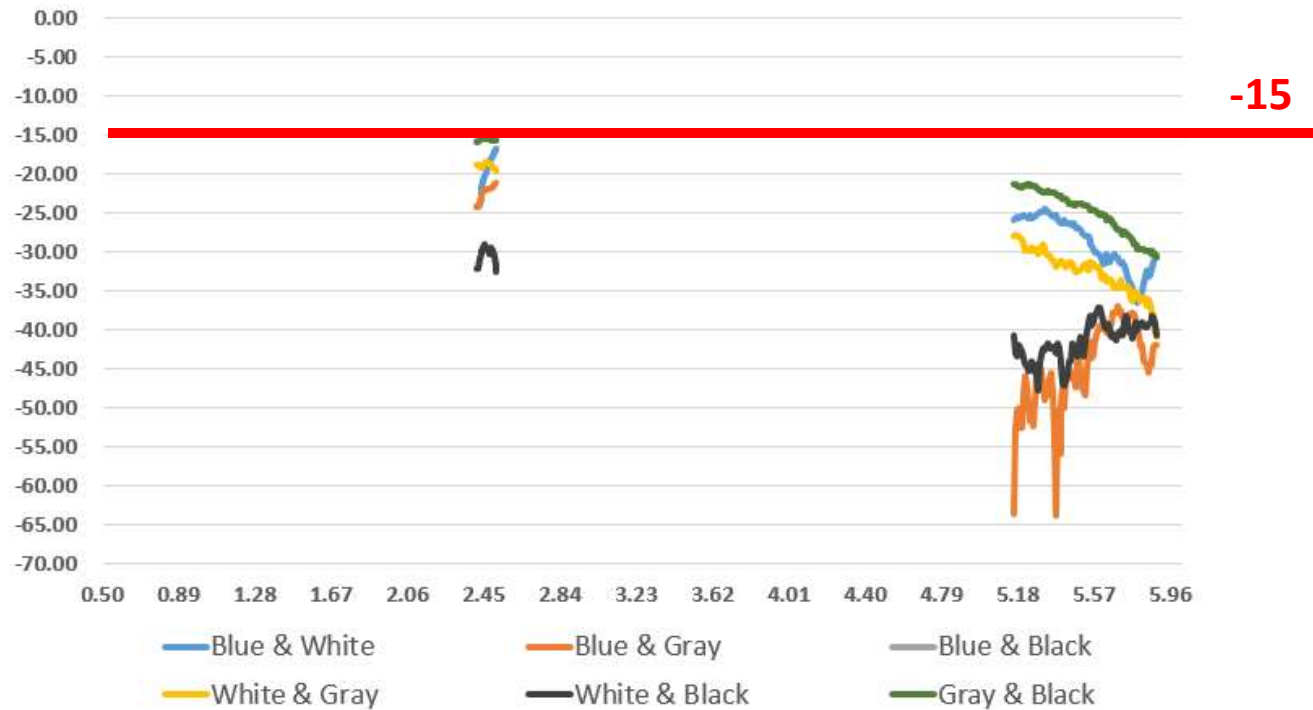
Antenna Return Loss

- The return loss of these antennas.



Antenna Isolation

- The isolation of these antennas.

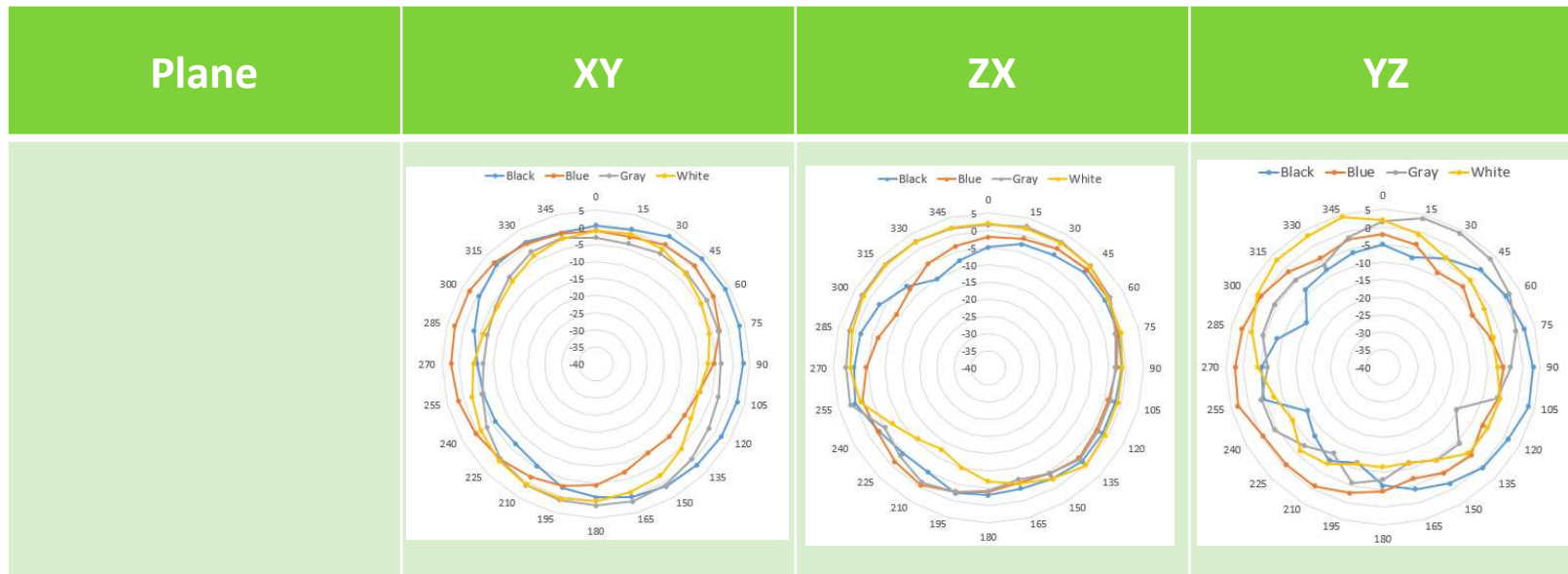


Antenna Radiation Pattern



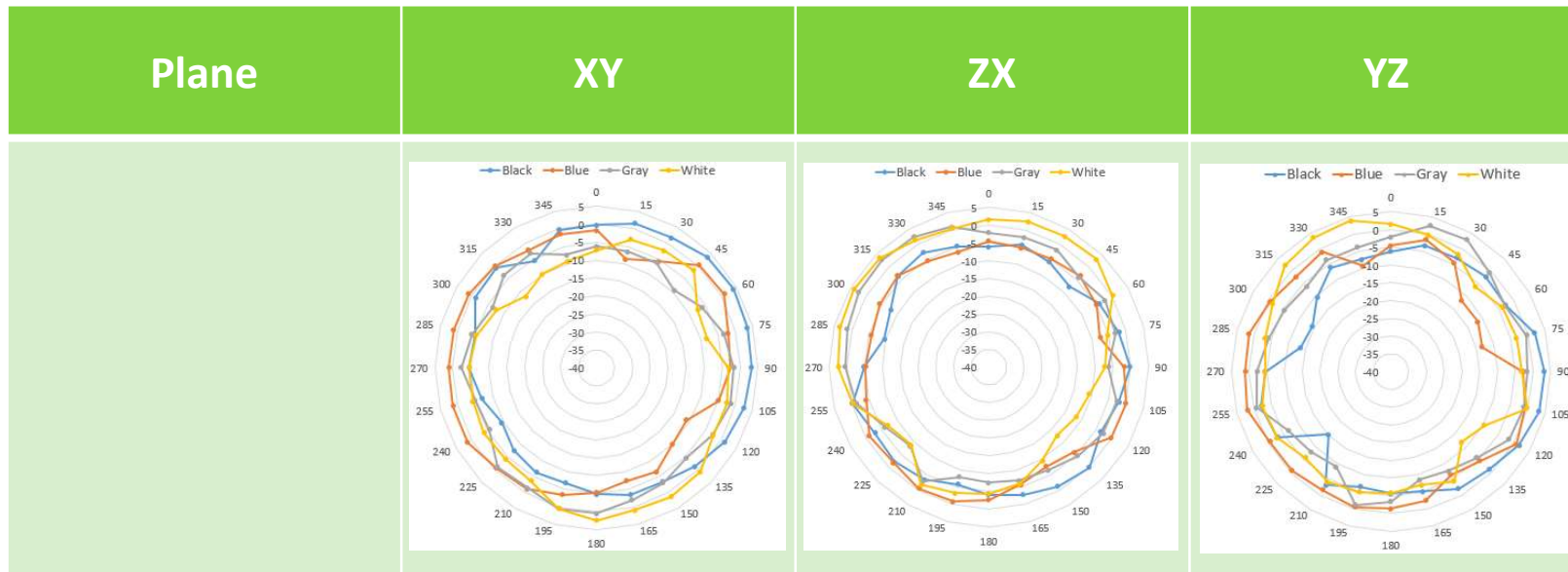
Antenna Radiation Pattern_2450MHz

- The Antenna Radiation pattern of these Antennas.
 - The Radiation pattern of the 2G Ant. @2450MHz



Antenna Radiation Pattern_5500MHz

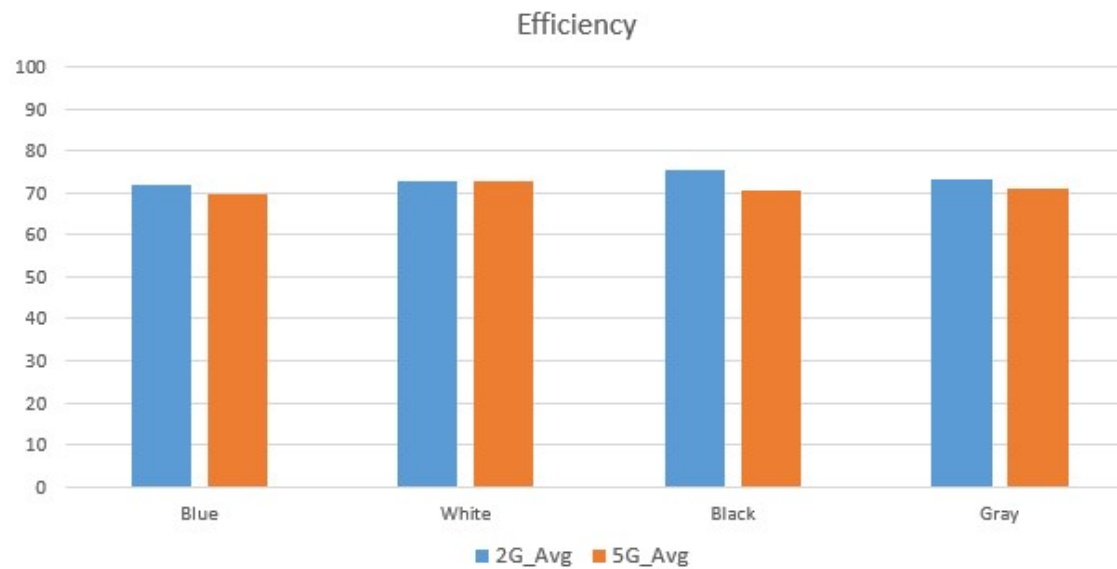
- The Antenna Radiation pattern of these Antennas.
 - The Radiation pattern of the 5G Ant. @5500MHz



Antenna Efficiency and Gain List

Antenna Efficiency

■ Antenna Efficiency



Antenna	2G	5G
	Avg Efficiency(%)	Avg Efficiency(%)
Blue	72.02	69.87
White	72.87	72.9
Black	75.5	70.7
Gray	73.14	71.04

Antenna Gain List

■ Gain List:

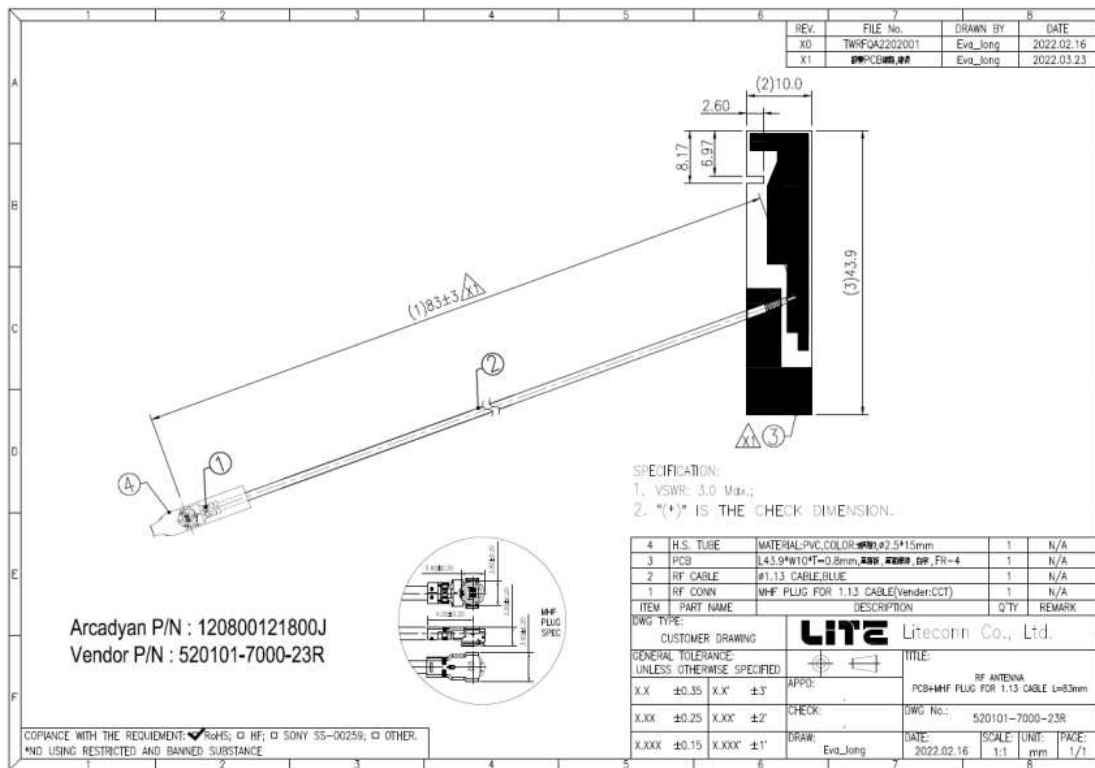
	2400	2450	2500	5150	5300	5500	5850
Blue	3.56	3.58	3.18	4.09	2.57	3.12	2.39
White	3.84	4.14	3.56	3.85	2.68	3.38	2.48
Black	3.4	4.17	4.15	3.87	2.34	2.39	2.52
Gray	3.25	3.59	2.92	3.79	2.64	3.29	2.64

Antenna NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency Range	Antenna Type	Connector Type	*Cable Length	In Cable Loss(dB)
Blue	LITE	520101-7000-23R	3.58 4.09 2.57 3.12 2.39	2.4~2.4835GHz 5.15~5.25GHz 5.25~5.35GHz 5.47~5.725GHz 5.725~5.85GHz	Dipole	Ipex(MHF)	83mm	YES
White	LITE	520101-7003-23R	4.14 3.85 2.68 3.38 2.48	2.4~2.4835GHz 5.15~5.25GHz 5.25~5.35GHz 5.47~5.725GHz 5.725~5.85GHz	Dipole	Ipex(MHF)	38mm	YES
Black	LITE	520101-7002-23R	4.17 3.87 2.34 2.39 2.52	2.4~2.4835GHz 5.15~5.25GHz 5.25~5.35GHz 5.47~5.725GHz 5.725~5.85GHz	Dipole	Ipex(MHF)	105mm	YES
Gray	LITE	520101-7001-23R	3.59 3.79 2.64 3.29 2.64	2.4~2.4835GHz 5.15~5.25GHz 5.25~5.35GHz 5.47~5.725GHz 5.725~5.85GHz	Dipole	Ipex(MHF)	70mm	YES

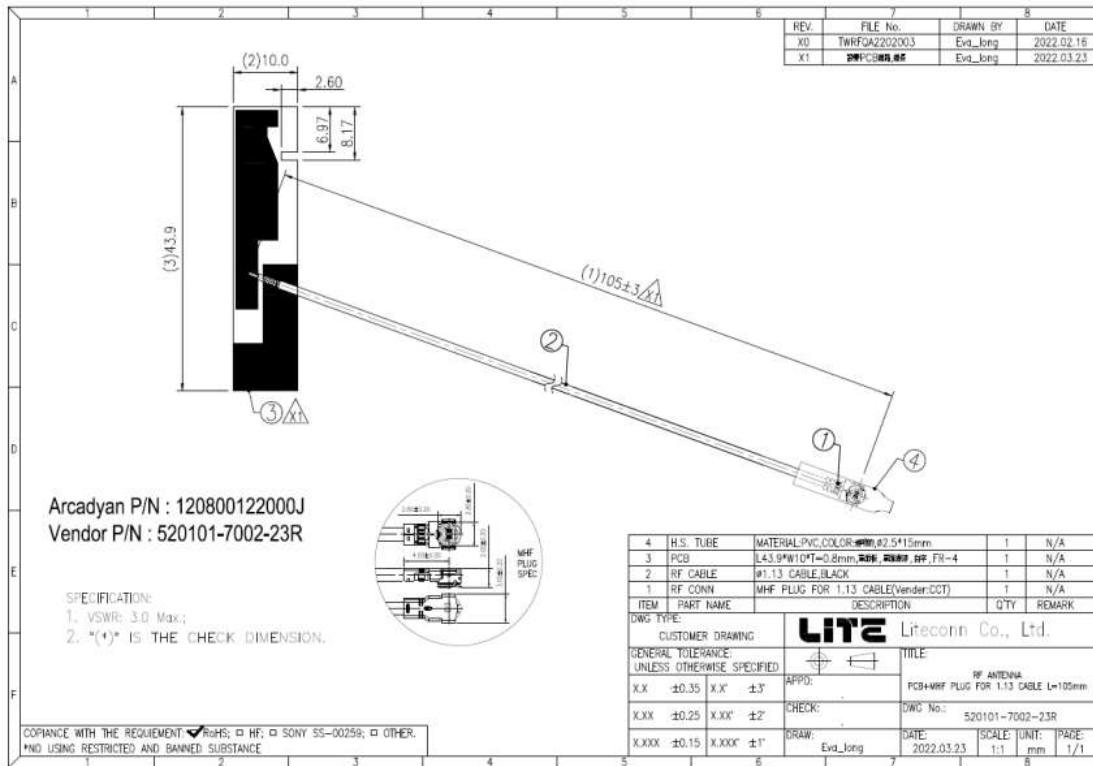
Antenna Drawing



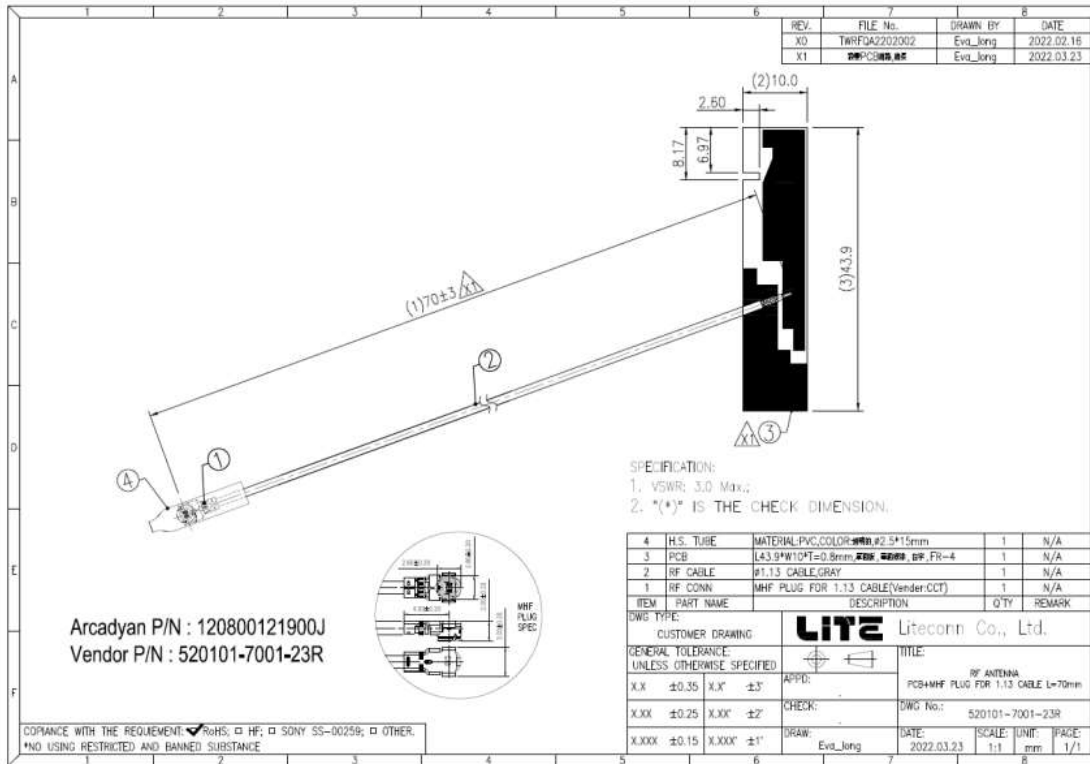
Antenna Drawing Blue



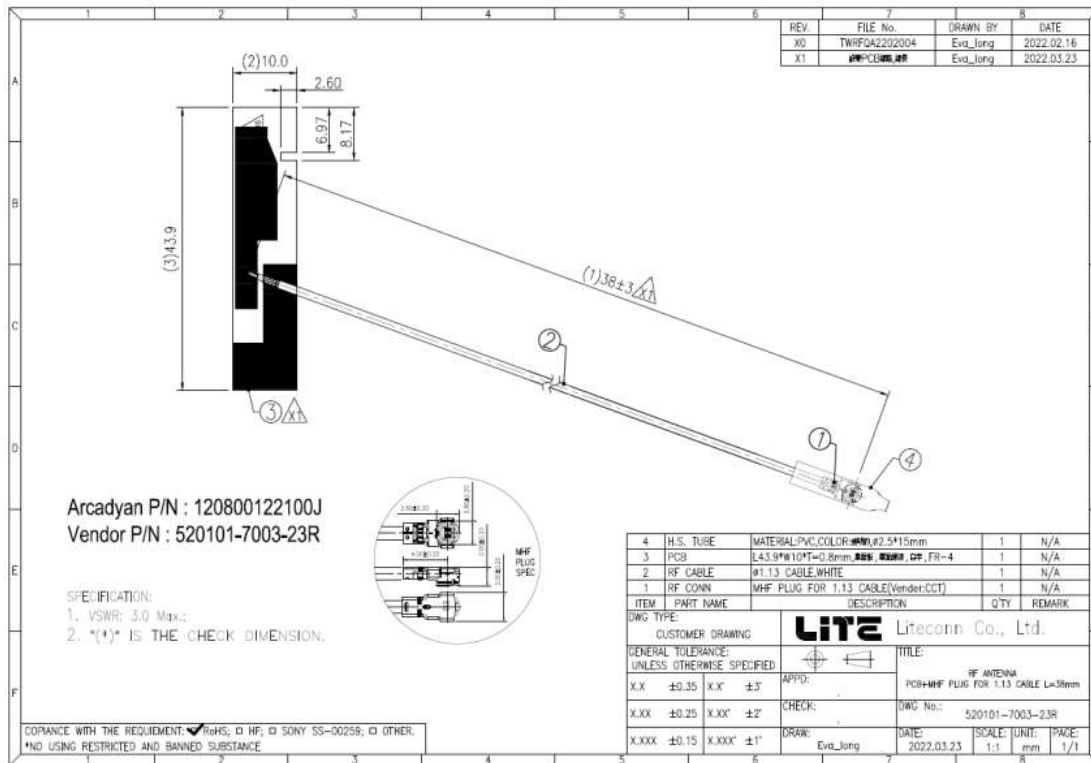
Antenna Drawing Black



Antenna Drawing Gray



Antenna Drawing White





Summary



Summary

- ❑ **Antenna Return Loss**
 - The return loss of all antenna are $< -10\text{dB}$ in 2G/5Gband.
- ❑ **Antenna Isolation**
 - The isolation of these antennas is $< -15\text{dB}$ in 2G/5G band.
- ❑ **Antenna Efficiency**
 - The average antenna efficiency of these antennas are better than 60%.
- ❑ **Antenna Peak Gain**
 - The peak gain of these antennas is $< 2\text{G}$ band are around 4.17 dBi.
 - The peak gain of these antennas is $< 5\text{G}$ band are around 4.09 dBi.

- ❑ The Basically, it has a good antenna radiation pattern coverage in this design.
- ❑ In general, the antenna property is good for using in this systems.



Broadband • Multimedia • Wireless

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