

## <Announcement of a New Report>

# Market Report on High-Speed & High-Frequency Copper Clad Laminates(CCLs) and Printed Circuit Boards(PCBs)

Publication Date : July 29, 2024

Format : A4 Size 259 Pages

Price: JPY 600,000- (for Corporate Contract)

JPY 800,000- (for Global Contract)

Japan Marketing Survey Co., Ltd.

8F, 2-24-12 Higashi-Nihonbashi, Chuo-ku, Tokyo, 103-0004 Japan

| TEL: 81-3-5829-3891 | E-mail: [info@jms21.co.jp](mailto:info@jms21.co.jp) | <https://www.jms21.co.jp>

# Focal Points of the Survey

- Estimates and analyzes the 2023 market size of high-speed (low-loss) CCLs based on value and volume, classified by loss levels, applications and manufacturers. Forecasts the market size up to 2033.
  - By Low Loss Levels: Extreme Low Loss(<0.0015), Ultra Low Loss(0.0016-0.003), Very Low Loss(0.0031-0.0055), Low Loss(0.0056-0.0079), Mid Loss(0.008-0.099) ※Df@10GHz
  - By Applications: AI Server, General Server, Switch & Router, Base Station(BBU), Others
- Estimates and analyzes the 2023 market size of Multi-layer PCBs (High-Speed) based on value and volume, classified by layer-counts, applications and manufacturers. Forecasts the market size up to 2033.
  - By Layer-counts: 4-10L, 12-20L, 22+L
  - By Applications: AI Server, General Server, Switch & Router, Base Station(BBU), Others
- Estimates and analyzes the 2023 market size of High-Frequency(Low Dk) CCLs based on value and volume, classified by materials, applications and manufacturers. Forecasts the market size up to 2033.
  - By Materials: PTFE, Hydrocarbon, PPE, PPO &Others
  - By Applications: Base Station(RU and RRH), mmWave Radar, AiP, Others
- Estimates and analyzes the 2023 market size of RF Antenna PCBs based on value and volume, classified by materials, applications and manufacturers. Forecasts the market size up to 2033.
  - By Layer-counts: Double-sided, 4-10L, 12-20L, 22+L
  - By Applications: Base Station(RU and RRH), mmWave Radar, AiP, Others
- High-Speed & High-Frequency CCL Manufacturers' Case Studies (16 Companies)

# Research Items -1

## Research Products and Target Manufacturers

Classification			Manufacturers
CCLs	High-Speed (Low Loss)		Panasonic, EMC, TUC, ITEQ, Doosan, Shengyi, AGC, Nan Ya NMT, ISOLA, NanYa, Resonac, Wazam, Kingboard, MGC, Others
	High-Frequency (Low Dk)		Rogers, EMC, AGC, Panasonic, Shengyi, CZZYST, ISOLA, MGC, ITEQ, Nanya NMT, Doosan, TUC, NanYa, Wazam, Resonac, Others
PCBs	Multi-layer PCBs (for High-Speed)		WUS Group, Shennan, Gold Circuit, TTM, ISUPETASYS, Tripod, Fastprint, LINCSTECH, MULTEK, Aoshikang, Shengyi, SANMINA, SUNTAK, Delont, Unimicron, VictoryGiant, Kingboard, Kinwong, Hannstar, ZDT, Nan Ya, Simmtech, ACCL, Daeduck, Others
	RF Antenna PCBs (for High-Frequency)	Base Station	Shennan, Shengyi, TTM, WUS, Somacis, Isu Petasys, Kinwong, Others
		mmWave Radar	TTM, ZDT, Unitech PCB, Kyocera, Multek, Schweizer, CCTC, Others
		AiP	Samsung, LGI, Unimicron, Kinsus, Others

\*CCLs: including Prepregs

# Research Items -2

## 1. High-Speed CCLs (Low Loss)

	Extreme Low Loss	Ultra Low Loss	Very Low Loss	Low Loss	Mid Loss
Df @10GHz	<0.0015	0.0016-0.003	0.0031-0.0055	0.0056-0.0079	0.008-0.099

## 2. High-Frequency CCLs (Low Dk)

	PTFE	Hydrocarbon	PPE, PPO and Others
Dk & Df@10GHz	Dk@10GHz:2.2-2.9, Df@10GHz:0.0013-0.003	Dk@10GHz:3.0-3.5, Df@10GHz:0.0026-0.0036	Dk@10GHz:3.3-3.9, Df@10GHz:0.002-0.0045

## 3. High-Speed & High-Frequency PCBs

Application	PCB Type	Application Field
High-Speed	Multi-layer PCBs	AI Server, General Type Server, Switch & Router, Base Station(BBU) and Others
High-Frequency	RF Antenna PCBs	Base Station (RU and RRH), mmWave Radar, AiP and others

# Table of the Contents

Executive Summary.....	1-22
Chapter 1 Market Trends of High-Speed(Low Loss) CCLs and PCBs.....	23
1. Market Trends of High-Speed(Low Loss) CCLs.....	25
List of Major High-Speed (Low-Loss) CCL Manufacturers.....	26
List of High-Speed (Low-Loss) Products of Major CCL Manufacturers.....	27
2023 Market Size and Breakdown of High-Speed (Low-Loss) CCLs.....	29
2023 Sales of Major CCL Manufacturers by Low Loss Levels.....	30
2023 Sales of High-Speed (Low Loss) CCLs By Manufacturers and by Applications.....	32
2023 Market Share of High-Speed (Low Loss) CCL Manufacturers.....	34
Market Size Forecast of High-Speed (Low Loss) CCLs by Low Loss Levels.....	35
Market Size Forecast of High-Speed (Low Loss) CCLs by Applications.....	37
2. Market Trends of High-Speed PCBs.....	39
2023 Market Size and Breakdown of Multi-layer PCBs by Applications.....	40
2023 Manufacturers' Sales of Multi-layer PCBs by Layer-counts.....	41
2023 Manufacturers' Sales of Multi-layer PCBs by Applications.....	43
2023 Manufacturers' Market Share of Multi-layer PCBs.....	45
Market Size Forecast of Multi-layer PCBs by Layer-counts.....	46
Market Size Forecast of Multi-layer PCBs by Applications.....	48
3. Market Trends by Applications.....	50
3-1. Market Trends of High-Speed(Low Loss) CCLs and PCBs for AI Servers.....	51
2023 Manufacturers' Sales of High-Speed(Low Loss) CCLs for AI Servers.....	52
2023 Manufacturers' Market Share of High-Speed(Low Loss) CCLs for AI Servers.....	54
Market Size Forecast of High-Speed(Low Loss) CCLs for AI Servers.....	55
2023 Manufacturers' Sales of Multi-layer PCBs for AI Servers.....	57
2023 Manufacturers' Market Share of Multi-layer PCBs for AI Servers.....	59
Market Size Forecast of Multi-layer PCBs for AI Servers.....	60

3-2. Market Trends of High-Speed(Low Loss) CCLs and PCBs for General Type Servers.....	62
2023 Manufacturers' Sales Value of High-Speed(Low Loss) CCLs for General Type Servers.....	63
2023 Manufacturers' Market Share of High-Speed(Low Loss)CCLs for General Type Servers...	65
Market Size Forecast of High-Speed(Low Loss) CCLs for General Type Servers.....	66
2023 Manufacturers' Sales of Multi-layer PCBs for General Type Servers.....	68
2023 Manufacturers' Market Share of Multi-layer PCBs for General Type Servers.....	70
Market Size Forecast of Multi-layer PCBs for General Type Servers.....	71
3-3. Market Trends of High-Speed(Low Loss) CCLs and PCBs for Switches & Routers.....	73
2023 Manufacturers' Sales of High-Speed(Low Loss) CCLs for Switches & Routers.....	74
2023 Manufacturers' Market Share of High-Speed(Low Loss) CCLs for Switches & Routers.....	76
Market Size Forecast of High-Speed(Low Loss) CCLs for Switches & Routers.....	77
2023 Manufacturers' Sales of Multi-layer PCBs for Switches & Routers.....	79
2023 Manufacturers' Market Share of Multi-layer PCBs for Switches & Routers.....	81
Market Size Forecast of Multi-layer PCBs for Switches & Routers.....	82
3-4. Market Trends of High-Speed(Low Loss) CCLs and PCBs for Base Stations.....	84
2023 Manufacturers' Sales of High-Speed(Low Loss) CCLs for Base Stations (BBUs).....	85
2023 Manufacturers' Market Share of High-Speed(Low Loss) CCLs for Base Stations (BBUs)...	87
Market Size Forecast of High-Speed(Low Loss) CCLs for Base Stations (BBUs).....	88
2023 Manufacturers' Sales of Multi-layer PCBs for Base Stations (BBUs).....	90
2023 Manufacturers' Market Share of Multi-layer PCBs for Base Stations (BBUs).....	92
Market Size Forecast of Multi-layer PCBs for Base Stations (BBUs).....	93
3-5. Market Trends of High-Speed (Low Loss) CCLs and PCBs for Other Applications.....	95
2023 Manufacturers' Sales of High-Speed (Low Loss) CCLs for Other Applications.....	96
2023 Manufacturers' Market Share of High-Speed (Low Loss) CCLs for Other Applications.....	98
Market Size Forecast of High-Speed (Low Loss) CCLs for Other Applications.....	99
Market Size Forecast of Multi-layer PCBs for Other Applications.....	101

# Table of the Contents

Chapter 2. Market Trends of High-Frequency (Low Dk) CCLs and PCBs.....	103	2023 Manufacturers' Market Share of RF Antenna PCBs for mmWave Radars .....	146
1. Market Trends of High-Frequency (Low Dk) CCLs.....	105	Market Size Forecast of RF Antenna PCBs for mmWave Radars .....	147
List of Major High-Frequency (Low Dk) CCL Manufacturers.....	106	3-3. Market Trends of High-Frequency(Low Dk) CCLs and PCBs for AiPs.....	149
List of High-Frequency (Low Dk) Products of Major CCL Manufacturers .....	107	2023 Manufacturers' Sales of High-Frequency(Low Dk) CCLs for AiPs.....	150
2023 Market Size and Breakdown of High-Frequency (Low Dk) CCLs .....	111	2023 Manufacturers' Market Share of High-Frequency(Low Dk) CCLs for AiPs.....	151
2023 Sales of High-Frequency (Low Dk) CCLs by Manufacturers and by Materials .....	112	Market Size Forecast of High-Frequency(Low Dk) CCLs for AiPs .....	152
2023 Sales of High-Frequency (Low Dk) CCLs by Manufacturers and by Applications.....	113	2023 Manufacturers' Sales of RF Antenna PCBs for AiP .....	154
2023 Market Share of High-Frequency (Low Dk) CCL Manufacturers.....	114	2023 Manufacturers' Market Share of RF Antenna PCBs for AiPs.....	155
Market Size Forecast of High-Frequency (Low Dk) CCLs by Materials .....	115	Market Size Forecast of RF Antenna PCBs for AiPs .....	156
Market Size Forecast of High-Frequency (Low Dk) CCLs by Applications .....	117	3-4. Market Trends of High-Frequency(Low Dk) CCLs for Other Applications.....	158
2. Market Trends of High-Frequency PCBs (RF Antenna PCBs).....	119	2023 Manufacturers' Sales of High-Frequency(Low Dk) CCLs for Other Applications.....	159
2023 Market Size and Breakdown of RF Antenna PCBs by Applications.....	120	2023 Manufacturers' Market Share of High-Frequency(Low Dk) CCLs for Other Applications.....	160
2023 Manufacturers' Sales of RF Antenna PCBs by Layer-counts .....	121	Market Size Forecast of High-Frequency(Low Dk) CCLs for Other Applications .....	161
2023 Manufacturers' Sales of RF Antenna PCBs by Applications .....	123	Chapter 3 Manufacturers' Case Studies.....	163
2023 Manufacturers' Market Share of RF Antenna PCBs .....	125	Panasonic Industry Co., Ltd.....	164
Market Size Forecast of RF Antenna PCBs by Layer-counts.....	126	AGC Inc.....	170
Market Size Forecast of RF Antenna PCBs by Applications .....	128	Resonac Holdings Corporation.....	176
3. Market Trends by Applications.....	130	Mitsubishi Gas Chemical Company, Inc.....	182
3-1. Market Trends of High-Frequency(Low Dk) CCLs and PCBs for Base Stations(Rus & RRHs)..	131	Elite Material Co., Ltd.....	188
2023 Manufacturers' Sales of High-Frequency(Low Dk) CCLs for Base Stations(Rus & RRHs).	132	ITEQ CORPORATION.....	194
2023 Manufacturers' Market Share of High-Frequency(Low Dk) CCLs for Base Stations.....	133	Taiwan Union Technology Corporation.....	200
Market Size Forecast of High-Frequency(Low Dk) CCLs for Base Stations(RUs & RRHs).....	134	NAN YA Plastics Corporation.....	206
2023 Manufacturers' Sales of RF Antenna PCBs for Base Stations(RUs & RRHs) .....	136	Doosan Corporation Electro-Materials.....	212
2023 Manufacturers' Market Share of RF Antenna PCBs for Base Stations(RUs & RRHs).....	137	Rogers Corporation.....	218
Market Size Forecast of RF Antenna PCBs for Base Stations(RUs & RRHs).....	138	ISOLA Group Ltd.....	224
3-2. Market Trends of High-Frequency(Low Dk) CCLs and PCBs for mmWave Radars.....	140	Shengyi Technology Co., Ltd.....	230
2023 Manufacturers' Sales of High-Frequency(Low Dk) CCLs for mmWave Radars .....	141	Nanya New Material Technology Co. Ltd.....	236
2023 Manufacturers' Market Share of High-Frequency(Low Dk) CCLs for mmWave Radars...	142	Changzhou Zhongying Science & Technology Co., LTD.....	242
Market Size Forecast of High-Frequency(Low Dk) CCLs for mmWave Radars.....	143	Zhejiang Wazam New Materials Co., Ltd.....	248
2023 Manufacturers' Sales of RF Antenna PCBs for mmWave Radars .....	145	KINGBOARD Laminates Holdings Ltd.....	254

# About the Report and how to order

## 1.Contract & Price

-Corporate contract : JPY 600,000-

This contract allows for use within the purchasing company or organization.

-Global contract : JPY 800,000-

This contract allows for use within the purchasing company or organization and the subsidiaries with a 51% stake or more.

\*We (JMS) hold the copyright on this report in any contract.

## 2. Publication Date: July 29, 2024

## 3. Format: A4 Size 259 Pages

-Available Formats: Hard Copy and Soft Copy, or Hard Copy Only, or Soft Copy Only (as per your preference)

## 4.Others

Depending on the type of business other than manufacturers or trading companies, above these prices may not apply, or this publication may not be available.

## <How to order>

1.Please fill out the blanks in the application form.

2.Please send the application form by E-mail ([info@jms21.co.jp](mailto:info@jms21.co.jp)) or go to our website to purchase our reports.

3.There are two ways to make a payment either by credit card or by wire transfer.

(Please choose appropriate application form by the payment way.)

In case you choose wire transfer, please make a payment within 15 business days.

In addition, please kindly bear the bank remitting charges concerned with yourself.

# Application Form (for Credit Card)



To: Japan Marketing Survey Co., Ltd.

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_.

Report Title : **Market Report on High-Speed & High-Frequency Copper Clad Laminates(CCLs)  
and Printed Circuit Boards(PCBs)**

Please check ☒ type of contract → ☐ Corporate Contract ☐ Global Contract

*\*Accepting the conditions of the type of contract (previous page), please fill out the blanks below form.*

Corporate Name:\_\_\_\_\_.

Applicant's Name:\_\_\_\_\_.

Applicant's Department:\_\_\_\_\_.

Corporate Address:\_\_\_\_\_.

\_\_\_\_\_.

Telephone No.:\_\_\_\_\_ E-mail:\_\_\_\_\_.

**<Credit Card Information> \* Visa, Master or AMEX**

Card Type:\_\_\_\_\_ Card Number :\_\_\_\_\_.

Expiration date:\_\_\_\_\_ Name on the card:\_\_\_\_\_.



# Application Form (for Wire Transfer)

**JMS**

To: Japan Marketing Survey Co., Ltd.

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_.

**Report Title : Market Report on High-Speed & High-Frequency Copper Clad Laminates(CCLs)  
and Printed Circuit Boards(PCBs)**

Please check ☒ type of contract → ☐ Corporate Contract ☐ Global Contract

*\*Accepting the conditions of the type of contract (previous page), please fill out the blanks below form.*

Corporate Name: \_\_\_\_\_.

Applicant's Name: \_\_\_\_\_.

Applicant's Department: \_\_\_\_\_.

Corporate Address: \_\_\_\_\_.

\_\_\_\_\_.

Telephone No.: \_\_\_\_\_ E-mail: \_\_\_\_\_.

Please transfer the payment to the following:

\*Bank : MIZUHO BANK (Swift code: MHCBJPJT)  
\*Branch: Kobunacho Branch (Phone:+81-3-3661-3111), [Branch code: 105]  
\*Branch address: 8-1 Nihonbashi Kobunacho, Chuo, Tokyo 103-0024 Japan  
\*Account Number: 105-1653912,  
\*Account Name: Japan Marketing Survey Co., Ltd.

*\*Please make the payment in 15 business days. Please transfer the payment the way the amount above will be deposited in our account.*