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India Certification Overview
BIS Safety - WPC Wireless – TEC Telecom
Kapil Saproo, *G&M Compliance Inc.*

Kapil Saproo

"I am the Director of G&M's India office located in Pune. I have over 22 years (Six years of working experience in Germany) of knowledge gained in the test and development sector in the area of Project Management, Product Validation, Testing, Simulation and Safety in various MNC companies in India and abroad. I have successfully delivered complex projects for Indian, US and European engineering companies in conducting various tests for different products with significant involvement in Automotive transportation. I have gained a lot of knowledge on a range of test equipment, sensors and data acquisition systems with the expertise of testing components as per different regulations and specifications. I have worked with various technical services organizations as well as test labs for product certification and approvals for Indian, US, Chinese and European markets".

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India Market - Overview

- Total population in India is 1.42 Billion (India is anticipating to surpass China's population by the end of May, 2023)

- India has more than 50% of its population is below the age of 25 and over 65% below the age of 35

- Indian middle class growing faster than any other region of the world

- The electronics market has grown at a CAGR of 14% from 2016-19 and is expected to accelerate at a CAGR of 16.6% in 2020-25, with the total demand likely to account for US$ 540 in FY25.

- The demand for electronic products will rise to US$ 400 billion by 2025 from US$ 33 billion in FY20.

- ESDM (Electronic System Design & manufacturing) sector is likely to generate US$ 130 billion in economic value by 2025.

- Electronics system market is expected to witness 2.3x demand compared to FY19 to reach US$ 160 billion by FY25.

- The consumer electronics and appliances industry in India is expected to become the fifth largest in the world by 2025.

- The electronics manufacturing services industry in India is projected to reach US$ 520 billion by 2025.

Source: https://www.ibef.org

Electronics Industry in India (US$ billion)

	FY19	FY25
	215.0	540.0

CAGR 16.6%
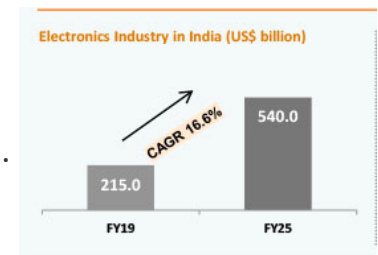
Overview of BIS Certification

- Bureau of India Standards (BIS) is a product certification scheme aims at providing Third Party Guarantee of quality, safety and reliability of products in India market place (mandatory beginning July 2013)

- India originally announced the implementation of 15 specific types of electrical equipment under the CRS (Compulsory Registration Scheme) for BIS certification. There are currently Five (5) lists of products under CRS scheme.

- Component parts of finished products, spare parts and replacement parts, may in some cases require BIS certification

- Products applied for BIS certification must conform to Indian (IS) standards and/or other additional technical requirements

- First step is to determine if your product falls under mandatory BIS category

- Using "Tariff Code" or "HS Code" ands product details are the most efficient way to find out if a product falls under mandatory BIS certification

Overview of BIS Certification

- CRS (Compulsory Registration Scheme) was introduced by the Department of Electronics and Information Technology (DeitY – now MeitY) along with the Bureau of Indian Standards (BIS)

- This program was designed for the manufacturer (Applicant) and unique registration is granted for each manufacturing location (Factory). Registration is granted based on:

  - ✓ Manufacturer = Factory location (Each Location)
  - ✓ Brand Name
  - ✓ Product type

- Registration Validity: Registration is valid for <u>two years</u> and can be renewed if there is no change in the product and the standard (each factory per Registration No.)

- As per the Series guidelines issued by DeitY (now MeitY), a report can cover a maximum of ten (10) models in a series under the ITE category. Other categories have different requirements

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Overview of BIS Certification

LIST 1 (I)

	Products	Applicable standard
1	Laptop/Notebood/Tablet	IS 13252
2	Plasma/LED/LCD TV (Above 32")	IS 616
3	Microwave Oven	IS 302-1 :2008
4	Printers/Plotters	IS 13252
5	Scanners	IS 13252
6	Set top Box	IS 13252
7	Visual Display Units/Video Monitors (Above 32")	IS 13252
8	Electronics Games	IS 616
9	Optical Disk Players	IS 616
10	Wireless Keyboards	IS 13252
11	Telephone answering machines	IS 13252
12	Electronic Music systems	IS 616
13	Mains powered electronic clocks	IS 302-2-26-1994
14	Amplifiers	IS 616
15	Automatic Data Processing Machines	IS 13252

Please note some of the components require BIS-ISI certification. Example: Power cable, MCB, etc.

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Overview of BIS Certification

LIST 2 (II)

	Products	Applicable Standards
1	Power Adapter for IT	IS 13252
2	Power Adapter for AV	IS 616
3	Self Ballasted LED Lamps	IS 16102-1:2012
4	LED Control Gears	IS 15885 (part 2/Sec 13): 2013
5	Mobile Phones	IS 13252
6	POS (Point of sales)	IS 13252
7	Cash Registers	IS 13252
8	Copying Machine	IS 13252
9	Smart Card Readers	IS 13252
10	Mail Processing Machine	IS 13252
11	Passport Readers	IS 13252
12	Power Banks	IS 13252
13	UPS/Inverter (Max 5KVA)	IS 16242 (Part 1)
14	Fixed LED Luminaries	IS 10322 (Part 5/Sec 1):2012
15	Sealed Secondary Cell/ Battery for portable devices	IS 16046 : 2015
16	Power adapters for IT (Internal PSU)	IS 13252

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Overview of BIS Certification

LIST 3 (III)

	Products	Applicable Standards
1	Recessed Luminaries	IS 10322-5-2
2	Luminaires for Road and street Lighting	IS 10322-5-3
3	Portable General Purpose Luminaires	IS 10322-5-4
4	Flood Lights	IS 10322-5-5
5	Hand Lamps	IS 10322-5-6
6	Lighting Chains	IS 10322-5-7
7	Luminaires for emergency lighting	IS 10322-5-8
8	UPS/Inverters of rating </= 10KVA	IS 16242-1
9	Plasma/LCD/LED Televisions of screen size upto 32"	IS 616
10	Visual Display Units, Video Monitors of screen size upto 32"	IS 13252 -1
11	CCTV Cameras/Equipment for CCTV Cameras	IS 13252 -1
12	Adaptors for Household and similar appliances	IS 302 -1
13	USB Driven barcode readers, Barcode scanners, Iris scanners, Optical fingerprints scanners	IS 13252 -1
14	Adapters for Medical electrical equipments Part 1 General requirements for safety 1, collateral standard - safety requirements for medical electrical equipments	IS 13450 (Part 1/Sec 1) : 2006, IEC 60601-1-1(2000)
15	Adapters for electrical equipments for measurements, control and laboratory use- Part 1 : General Requirements	IEC 61010
16	Smart Watches	IS 13252 -1

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Overview of BIS Certification

LIST 4 (IV)

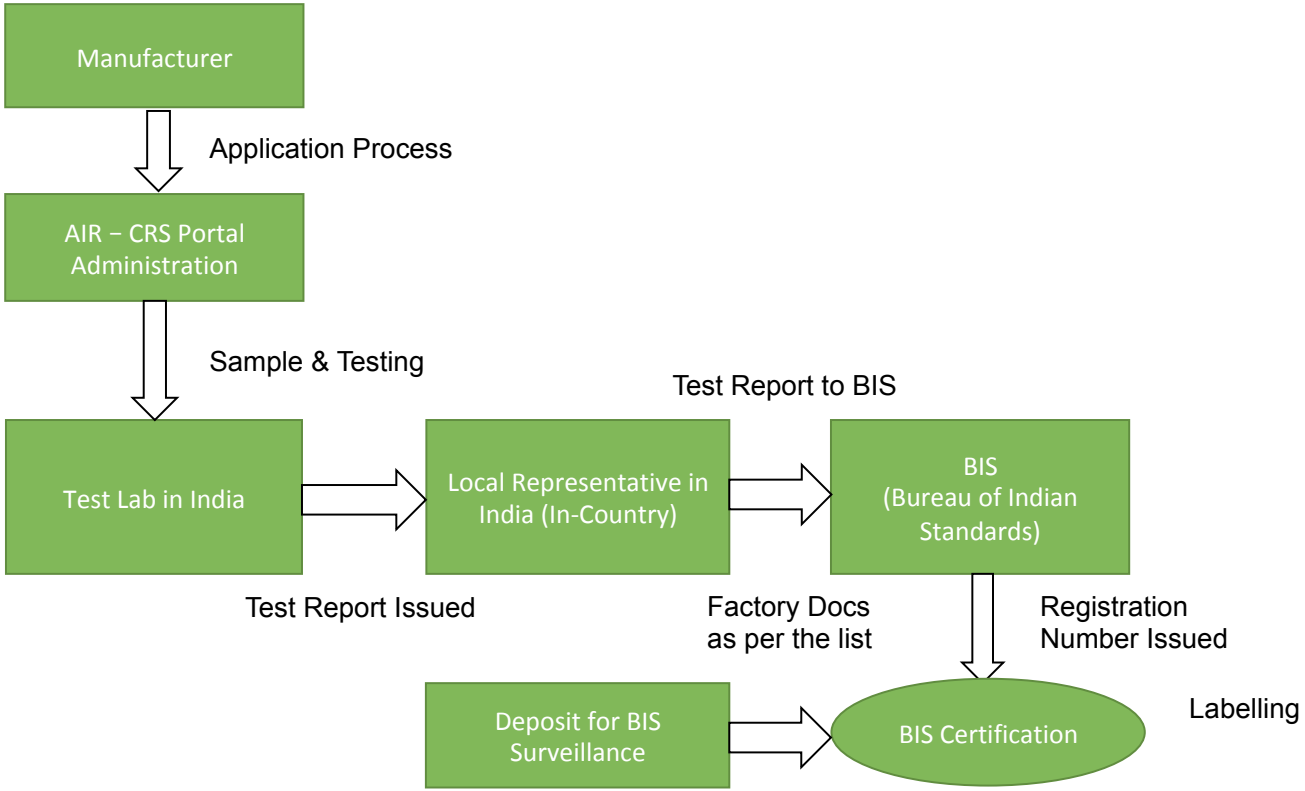|	Products	Applicable Standards
1	Independent LED Modules for General Lighting	IS 16103: Part 1: 2012
2	Lighting Chain (Rope Lights)	IS 10322: Part 5 Section 9: 2017
3	Keyboard	IS 13252: Part 1: 2010
4	Induction Stove	IS 302: Part 2: Section 6: 2009
5	Automatic Teller Cash Dispensing Machines	IS 13252 Part 1 :2010 I
6	USB Type External Hard Disk Drive	IS 13252 Part 1 :2010
7	Wireless Headphone & Earphone	IS 616: 2017
8	USB Type External Solid-State Storage Devices (above 256 GB Capacity)	IS 13252 Part 1 :2010
9	Electronic Musical System with Input Power Below 200 Watts	IS 616: 2017
10	Standalone Switch Mode Power Supplies (SMPS) with output voltage 48V (Maximum)	IS 13252 Part 1 :2010
11	Television other than Plasma/LCD/LED TVs	IS 616: 2017
12	Rice Cooker	IS 302: Part 2: Section 15: 2009
13	Independent LED Modules for General Lighting	IS 16103: Part 1: 2012
14	Lighting Chain (Rope Lights)	IS 10322: Part 5 Section 9: 2017

Overview of BIS Certification

LIST 5 (V)

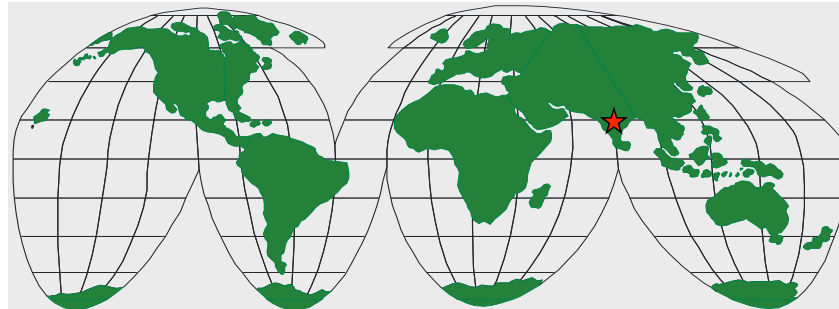|	Products	Applicable Standards
1	Wireless Microphone	IS 616:2017
2	Digital Camera	IS 13252 (Part 1): 2010
3	Video Camera	IS 616:2017
4	Webcam (Finished Product)	IS 616:2017
5	Smart Speakers (with and without Display)	IS 616:2017
6	Dimmers for LED Products	IS 60669-2-1: 2008
7	Bluetooth speakers	IS 616:2017
8	Wireless Microphone	IS 616:2017
9	Digital Camera	IS 13252 (Part 1): 2010
10	Video Camera	IS 616:2017
11	Webcam (Finished Product)	IS 616:2017
12	Smart Speakers (with and without Display)	IS 616:2017
13	Dimmers for LED Products	IS 60669-2-1: 2008

More products added such as Low-Voltage Switchgear and Controlgear; Storage Battery; Solar PV modules, Inverters, Chemicals, cotton bales, etc.

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Overview of BIS Certification

Manufacturer

↓ Application Process

AIR – CRS Portal Administration

↓ Sample & Testing

Test Lab in India → Local Representative in India (In-Country) → BIS (Bureau of Indian Standards)

Test Report to BIS

Test Report Issued

Factory Docs as per the list

Registration Number Issued

Deposit for BIS Surveillance → BIS Certification   Labelling

*BIS Random Surveillance

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Case Study – BIS Certification

- Target Country:

  - India – BIS Mark

- Basic Computer 1U Chassis with internal power supply "Pizza Box" – Note: Power cord & power supply must be BIS Approved

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Case Study – BIS Certification

- All documents MUST match Application, labels & associated documents (Company name, product description, model number(s). If any item does not match, the document will be required to be revised

- CB report is not required but can be used as a tool (if available)

- Currently, no EMC requirements under BIS CRS Scheme, only Safety to IS 13252 – Safety of Information Technology Equipment (Harmonized to IEC 60950-1 +A2) and another standard for A/V is IS 616 (Harmonized to IEC 60065)

- India has not currently adopted IEC 62368-1 but may transition in the near future (~2025)

- Additional sample of PCB board and plastic material for component flammability testing

- Schematic of battery protection circuitry (especially on motherboard)

- Currently, no factory inspection is required (may change in future)

Now MeitY is considering notifying Essential Requirements of EMI/EMC initially for Mobile Phones, Laptop/Notebook/Tablet, Printers, Microwave Ovens, Induction Stove, Rice Cooker.

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Case Study - BIS Certification

3 Basic Steps for BIS Certification

I.   DOCUMENTATION

II.   SUBMITTING SAMPLES & TESTING

III.   BIS MARK and LABELLING

Note: Random BIS Surveillance may be required

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Case Study - BIS Certification

BIS Documentation

- BIS Application and Factory Questionnaire forms must be completed correctly
- Production flow chart and BOM for the product
- List of documented procedures associated with the product (title of contents pages, if the document is too big)
- Quick Start Guide (must reference exact product name and model numbers to the Application)
- Copy of CB report for the overall product(s) (if available – for reference CCL)
- Copy of CB/BIS reports for the power supply, power cords, fuses, etc. (Power supply & cord must be BIS approved)
- Applicant and manufacturing facility's business license and ISO 9001
- Name plate or label
- Factory's organization chart

Case Study - BIS Certification

BIS Documentation

- For the Quick Start guide, basic items that are needed are: Products name, model number, product content, basic installation, and operating instructions, equipment rating (voltage/current), company information, any warning and cautionary statements

- The quick start guide can be a summary of the manual which generally is one to a two-page document. It should contain basic instruction, rating, and any safety warning information (English o.k.)

- If a series of equipment is being certified, a formal letter describing the differences needs to be provided

- Power Cable (input) – for India the power cord used (shipped with the product). The company will need to obtain the BIS certificate from the power supply manufacturer

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Overview of BIS Certification

	Document	Necessary Information
1	Document Information	1. Full name of the Manufacturer 2. Details of the main Model and series models. 3. Ratings. 4. Brand Name. 5. CCL (Critical Component List)
2	Label	1. Model Name 2. Rating 3. Brand Name 4. Country of Manufacturer. 5. Physical Sample is must.
3	Critical Components	Related Test reports and certificates are required. Refer to CCL Spreadsheet.
4	Power supply cord set	1. BIS approved. 2. Physical sample is must.
5	Business license of the factory and ISO	
6	User Manual	
7	PCB Layout	
8	Schematic/Circuit Diagrams	

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Overview of BIS Certification

Submitting Samples & Testing

- Once BIS issues a formal Application number to the Applicant (via CRS Portal), samples can now be sent to India for evaluation and testing (Independent Lab in India)

- Pay special attention to Customs Clearance issues

- Numerous labs in India have been designated by BIS to perform evaluation and safety testing (as of 2022, there are many more – becoming competitive)

- Generally, 2 samples are required to be sent to India, but 1 sample is o.k.

- Preparing test samples as well as having all of the proper information when shipping products to India for testing may be a bit confusing

- Generally, a Customs Agent is required to pick up the test sample and deliver it to the testing laboratory (using a qualified Customs Clearance agent is very important) (Consider using the Carnet method)

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Overview of BIS Certification

Submitting Samples & Testing

- Importer of Record (IOR) should be the assigned test lab in India. Only BIS exemptions are given to a test laboratory (if not use Carnet)
- Maximum 5 samples are allowed in a single shipment (except battery and lighting)
- Should provide copies of documentation to IOR/Agent for verification, including the shipping invoice, full description of contents along with the declared value
- IOR/Agent should be informed before shipment and be able to track the package
- Consider Carnet for importing test samples (save tax and customs duty)!
- New CRS Portal – cannot start BIS testing until registration has been submitted on the CRS portal
- Movement of test samples from one state to another within India needs to be restricted as this involves documentation (waybill) which labs are not able to provide as they are not registered with sales tax authorities. It is recommended to plan in advance with the test lab.

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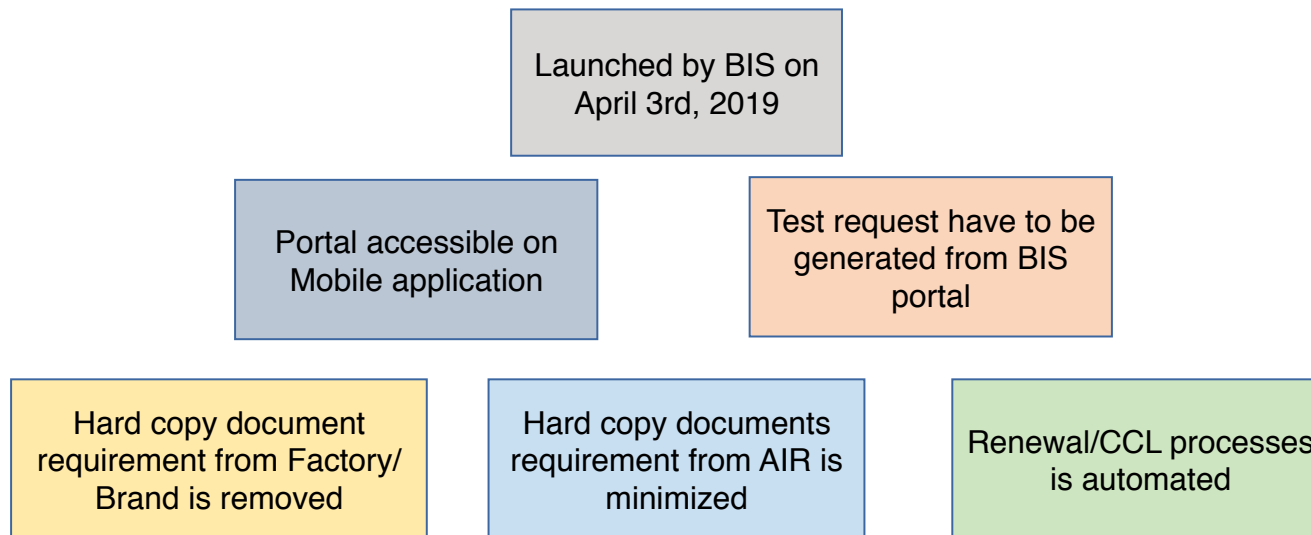
Overview of BIS Certification

BIS Mark & Labelling

- From July 1, 2016, it is mandatory to use the IS Mark on the product label

- The photographic reduction and enlargement of the IS Mark is permitted

- The IS Mark should be clearly visible, legible, indelible and non-removable on the label

- The font size should not be less than Arial font size 6

- If the product is small then the IS Mark can be displayed on the packaging of the product

- The color scheme for the IS Mark has to be as per the attached

- The IS Mark cannot be used on un-registered product

- The BIS website (www.bis.gov.is) needs to be labelled on the product or packaging (Implemented on Sept. 2019)

IS ----------

R - XXXXXXXX

IS 13252 (Part 1)/
IEC 60950-1

R-XXXXXXXX

www.bis.gov.in

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Overview of BIS Certification

Introduction To Smart Registration

Launched by BIS on April 3rd, 2019

Portal accessible on Mobile application

Test request have to be generated from BIS portal

Hard copy document requirement from Factory/ Brand is removed

Hard copy documents requirement from AIR is minimized

Renewal/CCL processes is automated

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Overview of BIS Certification
Impacts Of Smart Registration

Address verification is compulsory to initiate the process

Testing cannot be initiated without TRF and QR code on the sample

Advance booking of samples is not possible. Projects will be executed on first come first serve basis

Any modification in Ratings, Model numbers, Series models and Brand name is not possible once testing has started

A lack of documents may force the lab to cancel the project since they must meet the timeline

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Overview of BIS Certification

Need Of Smart Registration

❑ Automated process flow

❑ A step ahead in digital India; reduce paper waste

❑ Help in load assessment for labs and BIS

❑ Improves the timeline

❑ Reduce the chances of typographical errors which results in query

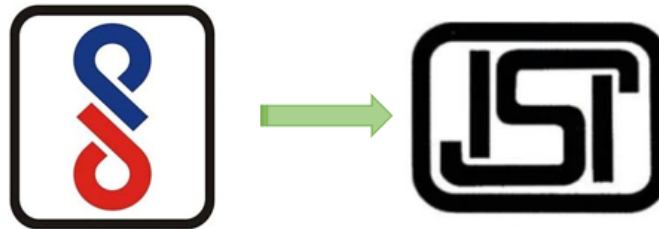Operative licence(s) — 21169

Customer Complaint

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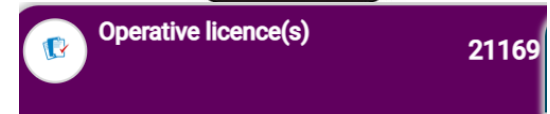
Overview of BIS Certification

Surveillance

> MeitY with the help of an external organization will process the surveillance of the products registered with BIS as and when required

> Samples will be purchased at random from the market for this activity

> If the samples are not available in the market and, they will visit the AIR to collect the samples or request the factory

> Testing will be conducted in any random lab selected by the authorities

> If the sample gets failed in the process, the registration will be liable for cancellation

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Recent Changes / Suggestions - BIS Certification

‣ Implementation of Parallel Testing – Before BIS does a complete and full rollout, they have decided to do this only for Mobile Phones. All the components (such as power supplies, batteries, etc.) which require Registration under CRS can be sent for testing in parallel at any of BIS-recognized labs.

‣ BIS logo change – BIS is discussing the BIS logo change in CRS scheme

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Wireless WPC Certification

- WPC stands for Wireless Planning & Coordination of India
- WPC is a National Radio Regulatory Authority
- WPC was created in 1952.
- WPC is responsible for Frequency Spectrum Management in India
- WPC exercises the statutory functions of the Central Government and issues licenses to establish, maintain and operate wireless stations in India
- WPC certification is required for all BT and wireless devices in India
- Factory inspection is not required

- WPC is divided into three (3) major sections:
  - ✓ Licensing and Regulation (LR)
  - ✓ New Technology Group (NTR)
  - ✓ Standing Advisory Committee on Radio Frequency Allocation (SACFA)

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Wireless WPC Certification

- All wireless products working in delicensed frequency bands require ETA certification from Wireless Planning and Coordination wing.

- ETA stands for Equipment Type approval and is granted to all wireless products on per model basis by WPC ensuring that all the technical parameters are aligned as per the regulation.

- ETA through "SD – self-declaration" is now applicable for all the categories of wireless products operating in delicensed frequency bands.

- Certain restricted categories of products e.g., Drones, Radars, etc. will be issued ETA through online/offline procedure

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Wireless WPC Certification

Wireless Speaker

Radar Devices

Access Points

ETA Process
+
Import License (WPC)
+
DGFT Approval

ETA - SD Process
+
Import permission

Satellite Communication Equipment

Wireless Modules

TV Broadcast Transmitter

Mobile Phones

Online submission is required

Submission to WPC centralized/local office

Timeline 5-7 Weeks

Legal obligations applicable on AIR

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Wireless WPC Certification

In India, radio frequencies for wireless communications with an upper limit of 3000 GHz. So, if devices operate outside of these frequencies, WPC does not regulate them.

1. Application for WPC Type/Series/Model
2. Evaluation and Test (WPC accepts test data/reports from accredited labs outside of India)
3. WPC Certificate No.
4. WPC Certificate – No Expiration Date (as long as no hardware change)

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Wireless WPC Certification

Application for WPC Type/Series/Modular Approval

a. Applicant name/address/contact information

b. Equipment name/ model/ trade mark

c. Modulation mode

d. Main functions

e. Frequency range

f. Occupied bandwidth

g. Max Transmitting power

h. E.I.R.P. (dBm)

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Wireless WPC Certification

WPC Type Approval & Testing

a. 2-3 samples are required for each model
b. Measurement of peak radiated power or EIRP
c. Measurement of peak power spectral density
d. Measurement of 6dB and 20dB bandwidth
e. Measurement of frequency range & details of channels
f. Measurement showing the behavior of edge channels
g. Measurement of spurious/harmonic emissions (conducted/radiated) in different frequency bands
h. Review of peak excursion & measurement uncertainty
i. Details of antenna systems used during the test
j. Review circuit diagram
k. Test plan
l. User manual
m. Review label layout

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Wireless WPC Certification

Issue WPC Certificate w/ETA Certification No.

A.   After completing tests & report

B.   Review of business license
         (local representative is required)

C.   Company business scope

D.   Application and test fees are received by WPC

Note: WPC certificate shall be granted only to an Indian company and not in the name of a foreign manufacturer - Indian Local Representative

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INTRODUCTION TO TEC - MT&CTE
(MANDATORY TESTING & CERTIFICATION OF TELECOM EQUIPMENTS)

All telecom equipment and equipment which can connect to Indian telecom network are covered under the scheme

Products in Phase 1 (Start: 01st Oct 19)

- 2- Wire Telecom Equipment (SCS)
- G3 Fax Machines (SCS)
- Modem (SCS)
- ISDN CPE (SCS)
- PABX **(SCS)**
- Cordless Telephone **(SCS)**

Products in Phase 2 (Start: 01st Oct 20)

- PON Family of Broadband Equipment **(SCS)**
- Transmission Terminal Equipment **(SCS)**
- Feedback Equipment (GCS)

Testing as per Essential Requirements (ERs) issued by TEC
1. EMI-EMC 2. Safety 3. **Technical Requirements** 4. *Security Requirements* 5. *Other requirements*

SCS: It is Simple Certification Scheme. In this Scheme, a Test report is not required to be submitted for approval but if TEC ask for it, then the same has to be provided
GCS: It is General Certification Scheme. In this Scheme, all test reports have to be submitted for evaluation to get the certificate from TEC

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INTRODUCTION TO MT&CTE
(MANDATORY TESTING & CERTIFICATION OF TELECOM EQUIPMENTS)

Products in Phase 3 (Certification mandatory from 01st July 2023)

No.	Product Category	Scheme
1	Base Station for Cellular Network	GCS
2	Repeater for Cellular Network	GCS
3	Compact Cellular Network	GCS
4	Tracking Device	GCS
5	IoT Gateway	GCS
6	End Point Device for Environmental Monitoring	GCS
7	Equipments Operating in 2.4 GHz and 5 GHz Band	**SCS**

TEC in their latest order notified that the Security Testing under MTCTE will become effective from 1st July 2023 for 'WiFi CPE (Customer Premise(s) Equipment)– Equipments Operating in 2.4 GHz and 5 GHz Band '

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INTRODUCTION TO MT&CTE
(MANDATORY TESTING & CERTIFICATION OF TELECOM EQUIPMENTS)

Products in Phase 4 (Certification mandatory from 01st July 2023)

No.	Product Category	Scheme	No.	Product Category	Scheme
1	Transmission Terminal Equipment (DWDM and DXC)	GCS	11	LAN Switch	**SCS**
2	Optical Fiber (Single Mode)	GCS	12	Precision Timing Protocol Grand Master Equipment	GCS
3	Satellite Communication Equipments	GCS	13	IP Multi Media Conferencing Equipment	GCS
4	Radio Broadcast Reciever	GCS	14	Mobility Management Entity (MME)	GCS
5	Mobile Radio Trunking System	GCS	15	Conferencing Equipment	SCS
6	HF Radio	GCS	16	Signalling Gateway	GCS
7	VHF / UHF Radio System Equipments	GCS	17	Media Gateway	GCS
8	PTP PMP Microwave Fixed Radio Systems	GCS	18	Softswitch	GCS
9	IP Security Equipment	GCS	19	Digital Subscriber Line (DSL) Equipment	GCS
10	Router	**SCS**	20	Session Border Controller	GCS

TEC in their latest order notified that the Security Testing under MTCTE will become effective from 1st July 2023 for 'IP Router" product categories.

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Products in Phase 4 (Certification mandatory from 01st July 2023)

No.	Product Category	No.	Product Category
1	*Base Station Controller (BSC)/Radio Network controller (RNC)*	9	*Short Message Service Center (SMSC)*
2	*Mobile Switching Centre (MSC)/MSC-Server (MSC- S)/Gateway MSC (GMSC)/Gateway MSC- Server (GMSC- S){including Visitor Location Register (VLR)}MSC/ MSC Server*	10	*Cell Broadcast Centre (CBC)*
3	*Equipment Identity Register (EIR)*	11	*Service Control Point (SCP)*
4	*Subscriber Identity Module (SIM)*	12	*Operation Maintenance Center(OMC) / Element Management System (EMS)/ Network Management System (NMS)/ Operation Support Svstems (OSS)*
5	*OTA Platform and Device Manager Platform/FOTA*	13	*Gateway Mobile Location Centre (GMLC)*
6	*Home Location Register (HLR) / Home Subscriber Server (HSS) / Authentication Centre (Auc)*	14	*Serving Mobile Location Centre (SMLC)*
7	*Serving GPRS Support Node (SGSN) / Gateway GPRS Support Node (GGSN)*	15	*Optical Fibre Cable*
8	*Serving Gateway (S-GW) / Packet Gateway (P-GW)*	16	*Infiniband Switch*

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Products Proposed in Phase 5
(Inplementation Date - TBD)

No.	Product Category
1	Base Station for Cellular Network
2	5G Core
3	Hypervisor
4	C-MSAAE (Converged Multi Service Application Access Equipment)

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Questions & Answers

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