

Report of the Technical Expert Committee on the Excise Adhesive Labels

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1. INTRODUCTION

Presently the Excise Department of Karnataka is using paper based hologram embedded Excise Adhesive Labels (EAL) with various security features developed over the years. These labels have been devised to be applied on liquor containers to ensure the collection of excise duty at the distillery level, to assure wholesome liquor and to prevent the sale of illicit liquor. In this regard, Government of Karnataka had constituted a Technical Expert Committee vide GO No. FD 63 EFL 2013, dated 21-8-2014, to study the various possibilities of improving the security features of the EAL and the process of application of the labels on liquor containers etc.

The Committee submitted its report on 20-10-2014. From the time of submission of report by the Technical Expert Committee in 2014 there have been several technological changes & upgradation in the Printing technology. Several changes also have taken place in the field of security features. With a view to adopt latest technology and procedures in respect of production of Excise Adhesive Labels the Government of Karnataka has constituted a Technical Expert Committee to go in to these aspects in its entirety and submit its report Vide G.O. No. FD 17 EFL 2017, Dated: 14-07-2017.

a) Terms of Reference:

The Terms of Reference of the Committee are mentioned hereunder:

1. To evaluate and recommend an option out of polyester based labels and the paper based EAL or any other material option.
2. To suggest specifications of label including various security marks and features of label.
3. Various terms and conditions for printing EAL including nature of printing and printing facility, printing process and other related issues related to printing¹ and supply of EAL.
4. To formulate tender specifications i.e., technical and financial and prequalification conditions.

5. To examine the possibility of mechanical application of labels on liquor containers and carton boxes.
6. To examine possibility of computerization of the whole process including track and trace system.

The Excise Adhesive Labels (EAL) are recognized by the Government as a highly effective and proven means of protecting its revenues, offering as they do, a deterrent to counterfeiters. It also serves as an insignia for government officials to undertake a fast and easy verification of genuine liquor containers. Sale of seconds and illicit liquor cause huge revenue loss to the Government. Adulteration illicit liquor can lead to tragedies of massive impact. Due to this, along with the purpose of preventing second quality liquor and illicit liquor trade, it is immensely important to effectively authenticate each bottle sold in the state, and also to easily identify and make sure that a particular bottle is distributed through authorized Government network to ensure revenue inflow. Needless to say, as a high volume product with a relatively high unit value, the labels are vulnerable to forgery. Therefore, the task of distinguishing counterfeit from genuine products become difficult. Hence, the efficacy of this EAL, as an advanced and tamper evident seal, has great significance.

Therefore, production methods of EALs are required to be of rare, secure and latest technology so that the counterfeiting becomes difficult. It is also necessary that the production method shall not be easy and commonly available. While at the same time, the end product could be easily differentiated from counterfeit products.

The committee has convened number of meetings and also undertook field visits to different places and has come out with this Technical Report addressing the terms of reference given in the Government Order. Also the previous Committee Report submitted on 20-10-2014 has been examined in detail in the context of the recent advancements in technology.

2. METHODOLOGY ADOPTED

The Committee adopted the following methodology for the study:

- To study the existing system in the States of Andhra & Telengana in comparison with Karnataka about the existing security features, method of production, accounting, application, and track and trace system.
- To understand the methods adopted in those states.
- To undertake field visits.
- To study the present trend in technology.
- To compare and analyse paper based and polyester based labels.
- To consult other experts in the field, officials of other states and holding the discussions with the members of the Committee.

Series of meetings were held on 10-08-2017, 21-08-2017, 22-08-2017, 23-08-2017, 05-09-2017, 14-09-2017, 21-09-2017, 12-10-2017 to discuss the different issues and exchange views before arriving on the conclusions.

3. EXISTING SYSTEM

Paper based EAL with hologram and totally polyester based Holographic Excise Adhesive Label (HEAL) are the main tools now being used by different Governments and Enforcement bodies to authenticate sealed IML and other liquor containers sold by the states. Recent advancements in digital technology may lead to widespread counterfeiting of excise labels. This in turn, has resulted in a great demand for high security excise labels. In Karnataka alone, the market for high security EAL is about 32 crores a month and the overall yearly requirement of high security labels is about 384 crores. Apart from alcoholic beverages, cigarettes, life saving high value medicines etc., are also poised to apply security stamps to authenticate the product and to ensure tax flow. Presently, in the Indian scenario there are a few private companies that are into the security label industry. However, in the absence of key public sector players, most of the state governments are invariably forced to order high security labels from the above small set of private industries.

In Karnataka, the paper based EALs, with holograms duly stamped on them are being used. The existing security features and their significance are mentioned hereunder.

TABLE - 1

Sl.No.	Security Feature	Significance
1	2-D Barcode	A software generated symbol that contains encoded information (presently only serial number) which can be read by a machine namely optical scanners. This is a easily verifiable feature.
2	Month code	The information from serial number 2 to 6 will mainly help in the segregation of the liquor products into batches. Though the printing of this information is not difficult, it is helpful to verify the product and authenticate.
3	Month and Year	
4	Ten digit serial number	
5	Item code	
6	State Code	
7	Variable Data	While it was possible to duplicate the labels with serial numbers the variable check digit data vary from label to label and is generated by mathematical formula (Random Number Generator). This formula will be changed every month and is confidential information of the department. This check digit helps to identify a Fake label easily by verifying the month, year and serial number on the label. If the generated number matches with the number on the label then it is an original valid label, otherwise it is a fake label. After total computerisation, checking of this data in the field is quite easy and instantaneous.
8	Intaglio Guilloche design	Intaglio printing is a sophisticated method where the printed image will be in relief style and stands out from other kinds of printed image. The Guilloche design is a pattern generated by a software which makes the process of scanning and photocopying difficult. This method of printing helps to generate micro lettering, latent image, etc.
9	Micro lettering in Intaglio	Makes scanning and duplication difficult. Micro lettering is scan proof and photo copy proof to a certain extent.

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9	Micro lettering in Intaglio	Makes scanning and duplication difficult. Micro lettering is scan proof and photo copy proof to a certain extent.

Sl.No.	Security Feature	Significance
10	Latent image	The intaglio printing makes it possible to get latent image when viewed from an angle. Scanning will not duplicate this feature. Intaglio printing also provides an added feature with its relief nature from the substrate i.e., paper.
11	Intaglio rub mark	Intaglio ink will not fully oxidise and dry up unlike other methods of printing. Therefore, when rubbed against a hard surface it bleeds and this test is simple and can be done anywhere.
12	Security diamond cut	It is mainly introduced to make the label tamper evident. When the label is removed from its applied surface, the diamond shaped strip gets disassociated from the main label and therefore it cannot be reused.
13	Invisible printing	The Commissioner's signature has been printed invisibly. This feature also makes the label scan proof.
14	Hologram	Hologram is a technology by itself, while the high security master is generated by laser technology it is nevertheless produced in large numbers by simple embossing process. 2D holograms used in EALs are embedded with the following features: <ul style="list-style-type: none"> - Multi channel effect - Concealed image - Guilloche pattern - Covert laser readable image - Government logo

The labels are being procured through a private agency after calling for the open tenders. In Karnataka, the labels are being affixed only on IML and not on Beer containers. Nearly 80% of the IML is packed in 180 ml packings, the remaining 20% of the total quantity is packed into 375 ml, 90 ml, 60 ml etc., Separate labels are produced for each volume. In a corrugated box of standard size, 48 containers of 180 ml liquor can be packed. Presently the labels are in the sheet form and each sheet contains 50 labels. Out of the 50 labels, in the case of 180 ml, the first and the last are the Control Labels which help in tracking and tracing subsequently. These labels will be affixed on the corrugated box.

The number of containers that can be packed in each box varies for other volume containers and therefore the control labels to be affixed on the boxes are being generated separately and provided.

The private supplier who is presently M/s Manipal Technologies Limited produces the labels in its security production plant in Manipal, Karnataka State with all the features except the serial number, variable data and 2D barcode. These additional but the most important security enhancing features are being executed in the premises of M/s. Marketing Communications & Advertising Limited (M C & A), Bangalore a state owned company under the strict supervision of the Excise Department official. The application of these labels on the liquor containers are done manually in the premises of the distilleries.

Three different colour labels are in use as mentioned hereunder.

1. Liquor manufactured and sold in Karnataka- Green colour
2. Liquor manufactured and sold outside Karnataka- Red colour
3. Liquor procured from outside Karnataka- Blue colour

In Karnataka, EALs are not applied on Beer containers.

4. FIELD VISITS

To know about the existing system of hologram stamped paper label and polyester based labels the following leading manufacturers were invited to make the presentation before the Committee.

1. Holostic India Ltd., Noida, UP
2. Uflex Ltd., Noida, U.P.
3. Manipal Technologies, Manipal, Karnataka

In response to the invitation only M/s. Manipal Technologies Ltd., & M/s UFLEX Ltd., made their presentations on 21st August 2017 in the office of the Excise Commissioner on the paper based labels and polyester labels respectively. M/s. Holostic India Ltd., did not respond at all. Subsequently the Committee undertook the field visits.

The Committee visited the printing facilities at M/s Manipal Technologies LTD., Manipal Karnataka where the existing EALs are manufactured, on 22-08-2017. Subsequently the Committee visited M C & A Ltd., Bangalore on

12.10.2017, where the above mentioned important security enhancing features are executed under the supervision of Excise Department. It also visited a distillery where the labels are applied on the liquor containers (M/s. KHODAY RCA, Bangalore) and Warehouse facility (KSBCL Depot, Bangalore) on the same day to understand the accounting arrangements.

The Committee visited the facilities at M/s UFLEX Ltd., Noida, U.P. to study the Master & Shim Production processes and facilities available with the said manufacturer who is executing the production of Holographic Excise Adhesive Labels (HEAL) to the states of Andhra Pradesh and Telangana in addition to few other states also.

The Committee later visited Andhra & Telangana facilities at Hyderabad on 05-09-2017 & 21-09-2017 where the Polyester Based Holographic Excise Adhesive Labels (HEAL) are being used for liquor containers. In these states, labels are being affixed both on Beer and Indian Made Liquor (IML). Visit to Hyderabad enabled the Committee to study the technology adopted in the production of HOLOGRAM and also their application on to the containers. In case of Andhra & Telangana, preparation of Holographic Masters and Shims are carried out at the facility of **M/s.UFLEX Pvt. Limited, Noida**. Mass production of labels is being executed using the shims by embossing etc., in the **premises of Excise Department in Hyderabad** by installing their own machinery and manpower. All further operations like gumming, slitting, numbering, bar-coding etc., are also executed in the same premises under the supervision of Excise Department.

5. ANALYSIS

The following observations have been derived by the Committee on the usage of EALs with reference to the terms of reference (TOR), which are based on the Presentations, Field Visits, Literature, Discussions with the experts in the field and Government Officials. etc.

a) Evaluation and recommendations on the option of the materials for the labels.

Generally, paper or polyester is being used for the production of labels. The polyester based labels are holographic labels. Each of the materials is

conducive to certain specific features and the processes of production are different for each material.

The security features required for any product depend on the following parameters.

- **Value of the product**
- **Life of the product**
- **Distribution of the product**

Based on the above parameters, the excise adhesive labels are generally expected to possess four kinds of security features namely:

- Overt(Level-1), which are mainly meant for the end users, with a naked eye.
- Covert(Level-2), which are also meant for end user and retailer with the help of simple gadgets.
- Covert(Level-3), Meant for enforcement agencies who can use with the help of special gadgets.
- Forensic(Level-4), Exclusive feature meant for lab level examination.

The features shall be such that it should be of rare technology, difficult to produce, with variability in features etc.

(i) Overt features : Level - 1

The overt features should be easily identifiable with a naked eye without the help of any equipment. These features provide reliable first line authentication by the non-specialist i.e., consumer. This will help the end user to distinguish between the genuine liquor and illicit liquor. The paper base is most suitable material to incorporate the overt features like Guilloche design, Intaglio printing, Latent Image, Rub test, Thermochromic irreversible printing etc.

A Few of the features that can be incorporated in HEAL are – 3D image, Multilevel animation effect, Kinetic and diffractive animated guilloche pattern, Mirror Effect etc.

(ii) Covert features: Level-2

These features shall have to be identified with simple gadgets which are easily accessible to the end user and the retailers. These can be incorporated both on paper and the Polyester. Level-2 features for paper base are Micro lettering, Invisible ink etc. There are features like 2D-3D Depth Effect, Pearl Effect, Washed Raster Image, 4 Channel Effect, Concealed Laser Viewable Animated Image etc., which can also be incorporated.

Similary, the hidden text on colour change background can be included in HEAL.

(iii) Covert features : Level -3

The features which can be identified by the enforcement officials in the field with special equipments are categorized under this heading. To name some of them - 2D-Bar Code, Variable Data, Invisible Printing, Covert Laser Readable Image, Nano Taggant etc. Of late the 2D Bar Code can be scanned and read by using as simple equipment as a Mobile phone using Andorid / iOS software. This technological advancement has made the barcode more consumer friendly. These features are possible on both Paper Based Hybrid EAL and HEAL.

(iv) Forensic features: Level – 4.

Nano Lettering, Nano Taggants etc. which are printable on paper base and Nano Text and Nano Taggant, Dot Size, Dot Shape, Dot Spacing, Internal Structures, Grating Period/Angle, Noise etc., which can be embedded in a Hologram are categorized under this level of security features.

It is obvious from the above that both Paper and Polyester based holographic labels possess their own distinct features.

b) Comparison of the Paper Based Labels and Polyester Based Holographic Labels

Out of the three options viz., Polyester Based EAL, Paper Based EAL & Paper Based EAL with Hologram, the two options viz., Holographic Excise Adhesive Labels (HEAL - which is a complete holographic label) and Paper Based EAL with Hologram are widely used. The third option of using only paper based labels is becoming outdated. Therefore, the Committee has limited the comparison to these widely used two options.

Comparison Chart:

TABLE - 2

Sl. No.	Parameters	Polyester based Holographic Excise Adhesive Labels (HEAL)	Paper Based Excise Label with Hologram (Hybrid)	Comparison
1.	Counterfeit Deterrence	Difficult to copy with the exact design. However methods such as Mechanical Copying, Contact Printing, Two-Step Copying, Re-Mastering Simulation are being used by the counterfeiters. The master making equipments have become compact in size and more simple to operate and produce the required masters. Also the equipments required for the embossing of Holographic Labels from the shims are compact and cheaper in cost. This will make the counterfeit more easier. However, Non master origination features like hidden text on colour change background, mirror effect required huge	The intaglio printing is a rare technology which requires huge setup and therefore duplication of intaglio printing is very difficult. Many of the security features that are existing in the present paper based labels are also very difficult to reproduce in view of the complexity of the process and the infrastructure required.	Both are Equally Good.

Sl. No.	Parameters	Polyester based Holographic Excise Adhesive Labels (HEAL)	Paper Based Excise Label with Hologram (Hybrid)	Comparison
		infrastructure and thereby it is difficult to duplicate these features.		
2.	Tamper Evident feature	The mechanism adopted for tamper evidence is strong and fool proof. Gets destroyed totally while it is removed from the bottle.	The tamper evidence is facilitated by providing a diamond cut and T-cut on the label and if the labels are not thoroughly affixed it will not provide the tamper evident effect at required levels.	The HEAL provides a better tamper evident effect.
3.	Easy Identification by Users and Excise Officers	HEAL has several visible features like mirror effect, engraved 3-D, state emblem, lens, frezenel, animations etc., that can be seen by the naked eye. However when it is seen in isolation it is not easy to identify a counterfeited label unless there is a original label available for comparison. By educating the consumers this drawback can be overcome.	In this category the printing on paper provides high end print security features along with the security features that can be embedded in the affixed hologram. Due to the possession of both complex print security features and holographic security features the identification of original label is easier.	Hybrid is better.
4.	Multi Layered Security	Overt, Covert and Forensic features can be incorporated.	Overt, Covert and Forensic features can be	Both are equally good.

Sl. No.	Parameters	Polyester based Holographic Excise Adhesive Labels (HEAL)	Paper Based Excise Label with Hologram (Hybrid)	Comparison
	Feature		incorporated.	
5.	Complexity of the substrate	Only one base substrate PET/BOPP (Polyester/Biaxially oriented Poly Propylene).	Combination of paper and hologram i.e. multi-layered variable material where by more secured.	Hybrid is better.
6.	Resistance to Water and Moisture	The polyester based holographic labels do not get affected by exposure to water and moisture.	Paper being hygroscopic material is likely to absorb moisture.	HEAL is better.
7.	Mechanical Application	Possible on bottles The committee has not come across the mechanical application on tetrapack containers	Possible on bottles The committee has not come across the mechanical application on tetrapack containers	Equally Good
8.	Cost of Investment	The cost of investment is relatively lesser and also floor area requirement and total establishment requirement is not huge whereby the chances of duplication are relatively higher.	The cost of investment is huge to an extent of about 90-100 crore. The establishment of machinery likey intaligo printing, offset printing, demands vast area and higher level of licensing	The cost of investment , complexity of setting up of the infrastructure and licensing makes the hybrid EAL more safe and secure.
9.	Eco friendliness	Non Bio-degradable relatively less eco friendly.	Bio-degradable therefore eco freindly	Paper Label is superior.

The option out of polyester based labels and paper based EAL requires to be made on the optimum level of security features and in the context of proposed total computerisation of operations including track and trace systems. Considering the advantages and disadvantages listed out in the above mentioned table no 2, The paper label with holographic feature is superior in 3 parameters while the HEAL is better in 2 parameters and the rest of the other 4 parameters both are equally sufficient and full fill the needs.

With regard to resistance to water and moisture by using appropriately coated paper substrate this can be made resistant to water and moisture.

The Paper based label has one rare and practically difficult to duplicate feature that is Intaglio printing while it is also eco friendly whereby it has an edge over the HEAL.

It is also a fact that there are Bio degradable PET films which can be used for the polyester based holographic labels. Once the computerisation is totally implemented the level of security features required can also be downscaled. If these things become a reality the bio degradable PET film will also be equally good for the usage in the Excise Adhesive Labels.

Considering these facts the Committee is of the opinion that in future both Paper and bio degradable Polyester film can be used in the production of Excise Adhesive Labels.

c) Recommended Specifications of the Paper Based EAL(Hybrid)

While evaluating the specifications of the existing EALs, the Committee observed the following points:

- Not totally tamper evident
- 2D hologram is not of high resolution
- Less suitable for chilled conditions.

The first two shortcomings are being overcome by making the EAL more tamper evident by incorporating T-cut and Diamond cut in the paper portion with deeper cut. Also features like engraved 3-D, animated picture, pearl effect,

mirror effect, higher resolution etc., are recommended for enhancing the level of the security of the hologram.

In the light of these facts, EAL with a combination of paper and hologram on high quality self-adhesive paper with a touch feel and Karnataka Government Logo integrated with the following specifications which is also suitable for mechanical application is recommended.

6. SPECIFICATIONS FOR HYBRID LABELS

1. Size of the Label:

15 mm (Width) x 75 mm (Length)

2. Quality of Raw Materials:

(i) Base paper – White maplitho of 80 GSM;

(ii) Tear strength of paper – 2 to 2.25 lbs/ inch

(iii) Hot melt adhesive –

Thichness = 20 +/- 2 GSM

Grade = Foodgrade

Temperature = 70⁰ c +/- 5⁰ c

(iv) Release paper of silicon coated glassine paper of 60 GSM +/- 2 GSM

(v) Shelf life of at least 1 year without any deformation or deterioration under normal atmospheric condition.

3. Quantity

Quantity required would be around 32 crore labels per month. However, no minimum quantity is guaranteed.

4. Form

Labels should be in roll form or as per the requirement of the Excise Department.

5. Colour

Adhesive labels are to be printed in 3 different colours i.e. green, red and blue or in any other such colour as prescribed by the Excise Department. Colour specific and variety (60 ml, 90 ml, 180 ml, 375 ml, 750 ml, 1000 ml, 2000 ml) specific quantity will be indicated by the Excise Department to the successful bidder. Separate colours in hologram and labels are to be adopted for various varieties as deemed necessary by Excise Department. Exact details will be disclosed to the successful bidder.

6. Security Marks and Features on Paper

(i) Invisible printing

Signature of Karnataka Excise Commissioner shall be printed with invisible printing inks in Offset printing process. It shall not be visible to the naked eye but shall be visible only through ultra violet light.

(ii) Thermochromic printing

Thermochromic printing produces a colour change effect when exposed to heat and returns to their original colour upon cooling. Verification of authenticity of EALs can be done simply by transfer of heat by placing a finger over the image area.

(iii) Security taggant

It should have a security taggant, which when read through an electronic reader will confirm the authenticity of the EAL. When the detector is held against the printed area, a light must be activated on the detector and high pitched beep/sound must be produced.

(iv) Guilloche design

This design is a drawing composed of multiple laced thin curved lines that cross each other in a complex fashion. The shape of the lines is determined by mathematical formula.

(v) Intaglio

The EAL should have Intaglio printing. This overt security feature must be difficult to counterfeit or simulate and should be easily recognizable as genuine in minimum time and without the need of an additional

device. Security design printed using intaglio printing will consist of fine, interlaced line structures that form a perfectly registered harmonic picture. In order to reassure the highest security possible, this pattern has to be the result of the one process in which both the visible as well as the tactile aspect has to be achieved. In order to establish this, the image should be formed by etching or engraving into a metal surface. These engraved areas will transfer ink with a high viscosity under a very high pressure on the substrate, thus forming the raised printing image. This printed feature should not only produce tonal effects by altering line widths and/or dot dimensions but also by altering the height of the print. The printed image will have a height varying from 10µm to 150 µm.

(vi) Intaglio rub mark

In order to prevent the fraudulent production of the EAL, the security design should be produced using an oil based ink, thus preventing the complete oxidation of the ink in order to allow a rub mark as a secondary proof of authenticity.

(vii) Microlettering:

The documents will hold microscopic letters (Character height of 15-150 µm) printed by Intaglio printing.

(viii) Intaglio latent image:

At least one Latent Image (preferably letter "K") formed as the result of the raised and tactile nature of the Intaglio technique should be included in the EAL. This element, when viewed straight should reveal only the initial design but when viewed at the eye level in a horizontal position against a source of light, a second image should be revealed. It is a security feature based on the optical effect under light produced by a special arrangement of lines printed by intaglio technique. The picture becomes visible only when the printed product is held at the eye level in a horizontal position against a source of light.

(ix) Security cut

Security Cuts like T-cut and Diamond Cut are to be provided to make sure that the label is completely damaged in the event of trying to remove it from its original position.

(x) Security marks and features on Tamper Evident Hologram:

Paper based label printed with the above security features and marks shall be fused with a hologram which shall not be reproducible by photomechanical copying systems and shall be deterrent to remaking. effects used in hologram shall be easily recognizable by the end user. Hologram shall be suitable for printing with ink jet or laser numbering. Layers in the hologram except covert features shall be visible to the naked eyes.

(xi) 2D Barcode

The 2D Bar code shall contain resolution of 300-600 DPI for machine reading it shall contain variable data details of 10 or more digits unique sequential serial numbers. 2D barcode shall be printed using Ink Jet Printing process during numbering. Size of 2D bar code shall be 8 mm x 8 mm and it shall be capable of storing minimum of 42 numeric digits and shall appear on white background.

(xii) 10 Digit Serial Number

The EALs should be numbered as specified by the Excise Department, with 10 digits sequential numbers with month and year to be generated through electronic mode.

(xiii) Check Digit

Three digit check numbers to be generated out of 10 digits serial numbers of the same label through software by using mathematical formula. These 3 digit check numbers are to be printed on the label by using computerized variable data printing machine.

(xiv) Application of labels

EALs should be suitable for both mechanical and manual application.

(xv) Packing

Each roll / spool shall contain about 10000 labels or as prescribed by the Department depending on the number of containers that can be accommodated in a corrugated box. The Spool of labels are to be packed in boxes as per requirements of the Excise Department in rolls wrapped up with suitable wrapping material and neatly packed in a corrugated box for easy handling. The printer should have proper inspection methodology to avoid any defects or mistakes. Control labels will be corresponding to the EALs either in sheet or roll form.

(xvi) Control Labels

The supplier shall provide the control labels with the bar code separately to be affixed on the cases.

(xvii) Design: To be developed by the supplier as per the guidelines of the purchaser.

7. TECHNICAL SPECIFICATIONS FOR HOLOGRAM

MASTER ORIENTATION FEATURES

High Security Master made on a secure system whether single or multiple systems capable of generating high security master with at least resolution of 12,000 DPI or more, which shall provide:-

1. Animated features,
2. Concealed animated image/text,
3. 3D depth effect (in text or image)
4. Animated multiple image/Texts,
5. Four channel effect at a single point,
6. Pearl effect with concealed channel effect,
7. Embossed text effect,
8. Engraved Silver 3D effect,
9. Micro/Nano-texts all over background.

NON-MASTER ORIGINATION

1. Hidden text/images on colour change background,
2. Mirror effect,
3. Security Taggant,

DESCRIPTION OF THE SPECIFICATIONS OF THE HOLOGRAMS:

ENGRAVED SILVER 3D EFFECT

The Engraved Silver 3D effect is a high precision digital laser image which visualizes as super overt image in silver colour with a wide range of refractive 3D effects and deeper depth effects but on finger touch one can feel smooth surface on HOLOGRAM despite the appearance of deeply engraved in Silver image.

HIDDEN TEXT ON COLOUR CHANGE BACKGROUND

Visual holographic designs transferred but not laminated on top layer of the HOLOGRAM and hidden texts as "Karnataka Excise" on hidden different colour background on second layer at a given place. The hidden text/colour should change at every 45⁰ angle. This hidden feature shall be visible only through a special Polaroid authenticity reader.

MIRROR EFFECT

Pure Mirror effect (without any colour) in which the viewer can see his/her full face clearly. There should be circular and triangular mirrors. The size of the circular mirror should be 4 mm to 5 mm (diameter) and each side of the triangular mirror should be 6 mm to 7 mm. There should be minimum 3 (three) alphabetical texts of minimum 1 (one) mm height inside each mirror as "KED". There should also be micro texts between the mirrors. There should be space of 3 mm between the edge of circular mirror and centre edge of the base triangular mirror. This feature should be incorporated on top of the HOLOGRAM through the transfer process and not laminated. The Mirrors should also have above hidden text as "KE" on colour change background, to be seen through polarizer film.

SECURITY TAGGANT

It should have a security taggant, which when read through an electronic reader will confirm the authenticity of the EAL. When the detector is held against the printed area, a light must be activated on the detector and high pitched beep/sound must be produced. Taggant print shall be in a specific place of 3-6 mm size.

SUGGESTED ARTWORK

The suggested artwork (minimum 3 options) to be submitted by the tenderer containing all the above mentioned security features. The actual design would, however be approved by the department only at the time of placement of the order. The master may be changed at the discretion of the tendering authority at any time during the currency of the tender and the tenderer should have in house facilities to produce / originate the master within time frame specified by the tendering authority.

OTHER SPECIFICATIONS

SIZE / SHAPE OF THE HOLOGRAM

The Size of the Hologram 15 mm x 15 mm [Square]

COLOUR OF THE HOLOGRAM

HOLOGRAMS are to be printed in different colours to match with the colour of the base material i.e., paper. Separate colours in HOLOGRAM and labels are to be adopted for various varieties as deemed necessary by Excise Department. Exact details will be disclosed to the successful bidder.

FEATURES

SPECIFICATION OF MAJOR RAW MATERIALS FOR THE HOLOGRAMS

1-STAMPING FOIL

TYPE: Made out of ultra-clear EMCL grade Tamper Evident Polyester foil

THICKNESS: 36-38 Microns \pm 5%

METALISING: Minimum 2.00 \pm 5% Optical Density

GRADE: Food grade

2-SPECIFICATION OF THE ADHESIVE

TYPE: Hot melt adhesive which can with stand the temperature of $70^{\circ}\text{c} \pm 10\%$ suitable for affixation partly on bottle cap and partly on the neck of the bottle.

THICKNESS: 22 GSM $\pm 10\%$

GRADE: Food Grade

Terms and Conditions for the Production of EAL including nature of Production Processes

- a) The Excise Department intends to engage reputed/experienced private security printer with Weboffset printing, Hologram and Intaglio printing facilities with computer variable dataprinter who are empanelled by RBI /IBA as Security Printer.
- b) The successful Tenderer shall print and supply Excise Adhesive Labels within 30 days from the date of receipt of acceptance under the specified terms and conditions which shall be executed in the form of an agreement as per the format to be provided.

PRINTING PROCESS –FOR HYBRID

- Printing of Guilloche design, Intaglio, Intaglio Rub Mark, Intaglio Micro Lettering, Intaglio Latent Image, Excise Commissioner's signature in Invisible Printing, State Government logo, 3 letter prefix, month / year, affixing the hologram have to be carried out on the base material at the printer's premises. Details of activities that need to be done at the printer's premises and the details of activities to be carried out under the supervision of the Excise Department are as given in technical specifications.
- Machines should be capable of printing the labels in roll form with matter in single colour and multi colours.
- 10 digit serial number, 3 digit check numbers, 2D-Barcode and any other codes shall be printed with computerized variable data printing machine under the supervision of Excise officials in the premises designated by the purchaser.
- The size/location of the security features shall be as per the directions of the purchaser.

- The security features should be printed in such a manner that duplication of labels should not be easily done and should be economically not feasible.
- Die punching shall be done to enable the Distilleries to peel out the EALs manually or through auto applicator from the release paper without any difficulty.
- 2D-Bar Code shall contain the variable data of the same 10 digit serial numbers of the label and/or any other data and it shall be machine readable from the distillery level to the end user level.
- The Printer shall maintain the highest standard of ethics in the printing and delivery of labels.
- The Printer shall ensure highest security during the execution of the contract.
- The Printer shall be responsible for any acts of commissions and omissions done by the staff or the employees and such other persons engaged by the Printer for working in the Security Press.

8. SPECIFICATION FOR HOLOGRAPHIC EXCISE ADHESIVE LABELS [HEAL]

I. TECHNICAL SPECIFICATIONS FOR POLYESTER BASED HOLOGRAPHIC EXCISE LABELS FOR ALL VARIETIES OF LIQUOR.

HEAL SPECIFICATION		
No	Feature Origination	Features
01	MASTER ORIGINATION FEATURES	<p>High Security Master made on a secure system whether single or multiple systems capable of generating high security master with at least resolution of 12,000 DPI or more, which shall provide:-</p> <ul style="list-style-type: none"> ▪ Animated features, ▪ Concealed animated image/text, ▪ 2D/3D depth effect (in text or image) ▪ 3D Mirror(Simultaneous creation of real and virtual light source image in 3D with opposite direction animation, projection and depth),

		<ul style="list-style-type: none"> ▪ CLR animated multiple image/Texts, ▪ Four channel effect at a single point, ▪ Pearl effect with concealed channel effect ▪ Embossed text effect, ▪ Engraved Silver 3D effect, ▪ Micro/Nano-texts all over background.
02	NON-MASTER ORIENTATION FEATURES	<ul style="list-style-type: none"> • Hidden text/images on colour change background. • Mirror effect, • Security Taggant, • 2D barcode of size 8mm x 8mm on white colour background on top side of HEAL, • 10 digit Ink jet numbering and 3 digit check code, • Serrated edges, • Chemical etching.

SPECIAL FEATURE SPECIFICATION:

No	Feature	Description
01	ENGRAVED SILVER 3D EFFECT	The Engraved Silver 3D effect is a high precision digital laser image which visualizes as super overt image in silver colour with a wide range of refractive 3D effects and deeper depth effects but on finger touch one can feel smooth surface on HEAL despite the appearance of deeply engraved in Silver image.
02	HIDDEN TEXT ON COLOUR CHANGE BACKGROUND	Visual holographic designs transferred but not laminated on top layer of the HEAL and hidden texts as "Karnataka Excise" on hidden different colour background on second layer at a given place. The hidden text/colour should change at every 45° angle. This hidden feature shall be visible only through a special Polaroid authenticity reader. This feature should be on top layer of the HEAL in such a way that as & when the top layer is removed this feature also comes off from HEAL along with the top layer.
03	MIRROR EFFECT	Pure Mirror effect (without any colour) in which the viewer can see his/her full face clearly. There should be circular and triangular mirrors. The size of the circular mirror should be 4 mm to 5 mm (diameter) and each side of the triangular mirror should be 6 mm to 7 mm. There should be minimum 3 (three) alphabetical texts of minimum 1 (one) mm height inside each mirror as "KED". There should also be micro texts between the

		mirrors. There should be space of 3 mm between the edge of circular mirror and centre edge of the base triangular mirror. This feature should be incorporated on top of the HEAL through the transfer process and not laminated. The Mirrors should also have above hidden text as "KE" on colour change background, to be seen through polarizer film. This feature should be on top layer of the HEAL in such a way that as & when the top layer is removed this feature also comes off from HEAL along with the top layer.
04	SECURITY TAGGANT	It should have a security taggant, which when read through an electronic reader will confirm the authenticity of the EAL. When the detector is held against the printed area, a light must be activated on the detector and high pitched beep/sound must be produced. Taggant print shall be in a specific place of 3-6 mm size.
05	CHEMICAL ETCHED CODING	Signature of Commissioner of Excise should be incorporated by white etched marking.
06	SUGGESTED ARTWORK	The suggested artwork (minimum 3 options) to be submitted by the tenderer containing all the above mentioned security features. The actual design would, however be approved by the department only at the time of placement of the order. The master may be changed at the discretion of the tendering authority at any time during the currency of the tender and the tenderer should have in house facilities to produce / originate the master within time frame specified by the tendering authority.
07	2D BARCODE	The 2D Bar code shall contain resolution of 300-600 DPI for machine reading. It shall contain variable data details of 10 or more digits unique sequential serial numbers. 2D barcode shall be printed using Ink Jet Printing process during numbering. Size of 2D bar code shall be 8 mm X 8 mm and it shall be capable of storing minimum of 42 numeric digits and shall appear on white background on top of the HEAL.

OTHER SPECIFICATION

No	Particulars	Requirement
01	SIZE /SHAPE OF THE HEAL	15 mm (width) x 70 mm (length) [Rectangular with serrated edges and round corners]

02	TYPE	HEAL should have temper evident with the holographic features, suitable for automatic/ manual application over the cap and neck of the liquor bottles. The HEAL should be as per the design approved by the department.
03	COLOUR OF THE HEAL	HEALs are to be printed in 3 different colours i.e. green, red and blue or in such colour as prescribed by the Excise Department, Colour specific and variety (60 ml, 90 ml, 180 ml, 375 ml, 750 ml, 1000 ml, 2000 ml) specific quantity will be indicated by the Excise Department to the successful bidder. Separate colours in HEAL and labels are to be adopted for various varieties as deemed necessary by Excise Department. Exact details will be disclosed to the successful bidder.

SPECIFICATION OF MAJOR RAW MATERIALS

1- STAMPING FOIL

No.	Particulars	Requirement
01	TYPE	Made out of ultra-clear EMCL grade Tamper Evident Polyester foil
02	THICKNESS	36-38 Microns \pm 5%
03	METALISING	Minimum 2.00 \pm 5% Optical Density
04	GRADE	Food grade

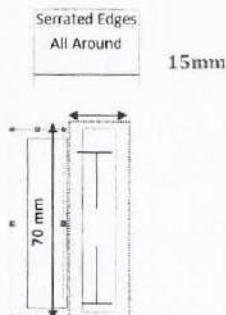
2- SPECIFICATION OF THE ADHESIVE

01	TYPE	Hot melt adhesive which can with stand the temperature of 70°C \pm 10% suitable for affixation partly on bottle cap and partly on the neck of the bottle.
02	THICKNESS	22 GSM \pm 10%
03	GRADE	Food Grade

3-SPECIFICATION OF THE RELEASE PAPER

No.	Particulars	Requirement
01	THICKNESS	62 \pm 10% GSM AND ABOVE GSM
02	COATING	Silicon based Solvent less coating

4-SPECIFICATION OF THE DIE CUTTING

No.	Particulars	Requirement
01	SECURITY CUT	<p>Security cuts in form of 'T' should be provided at both the ends of the HEAL for better affixation on the substrate and to ensure the HEAL is completely damaged in the event of trying to remove it from its original position.</p> 

OTHER SPECIFICATIONS

No.	Particulars	Requirement
01	FORM OF SUPPLY	Spool form with 3.0 mm \pm 0.50 mm gap between two HEALs horizontally and 1.5 mm \pm 0.50 mm gap vertically suitable for automatic and manual application.
02	2D BARCODE AND INKJET NUMBERING	Each HEAL has to be serially numbered by using inkjet and 2D Barcode by encrypting the serial number.
03	PACKING AND FORWARDING	The HEAL should be supplied in continuous spool form having 20,000 (twenty thousand) HEALs on each spool of 3" core I.D. suitable for both manual and automatic applications. One or more spools as specified by the Excise Commissioner shall be packed in one carton for proper transit of the HEAL. Each spool should have spool barcode and 5 spools packed in a carton shall contain complete details of HEALs packed through carton barcode.
04	DELIVERY OF THE HOLOGRM	Delivery of HEALs shall be made from the Headquarter of the Excise Commissioner, Karnataka, Bengaluru.

OTHER FEATURES:

- a) The layers in the HEAL except micro text, micro images, laser readable covert multiple animated images/texts, hidden text/images on colour changing background, etc. shall be visible from naked eyes.
- b) The HEAL shall not be affected by normal variation in atmospheric conditions.
- c) The shelf life of the HEAL shall be minimum two years without any deformation or deterioration under normal atmospheric condition.

a. **PRODUCTION PROCESS FOR HEAL :**

- Creation of design, generating of Master, Embossing production of all technical security features, numbering, bar-coding, inspection, packing etc have to be carried out in the premises designated by the Department Of Excise Government Of Karnataka as mentioned in the technical specification except printing of numbering, barcoding and coding, have to be carried out on the base material at the tenderer premises. The details of activities to be carried out under the supervision of the Excise Department are as given in technical specifications.
- Machineries should be capable of producing the HEALs in roll form with all security features in single colour or multi colours.
- 10 digits serial number, 3 digits check numbers, 2D-Barcode and any other codes shall be printed under the supervision of Excise officials in the premises designated by the purchaser.
- The size/location of the security features shall be as per the directions of the purchaser.
- The security features should be incorporated in such a manner that duplication of labels should not be easily done and should be economically not feasible.
- Die punching shall be done in such a manner to enable the Distilleries to peel out the EALs manually or through auto applicator from the release paper without any difficulty.
- The Supplier shall maintain the highest standard of ethics in the producing and delivery of HEALs.
- The Supplier shall ensure highest security standards during the execution of the contract.

- b. To ensure continuous and uninterrupted supply of Security HEALs, the capacity of the various machines should be sufficient to produce and supply at least 30 Crores or more HEALs per month and the supplier should have enough standby machines/ equipment to ensure that the supply of HEAL is not affected by breakdown of any machine/ equipment's.
- c. The Tenderer must submit recent photographs of all the machineries showing their functioning along with the required proof to show that the photographs are taken around the date of applying for the tender which may be verifiable at the time of inspection (if any) undertaken by the Excise Department.
- d. The Tenderer will be required to submit a list of machineries with its quantity and capacity and same should be certified by the Tenderer to enable the evaluation of tenderer.
- e. Further the proof of availability/installation of all machines as mentioned in the tender form may be verified by physical visit of the excise department officials.
- f. The Supplier shall be responsible for any acts of commissions and omissions done by the staff or the employees and such other persons engaged by the supplier for working in the Secured Premises.
- g. The Tenderer shall indemnify and hold harmless the Excise department and its employees and officers from any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature which the purchaser may suffer as a result of any alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise, existing at the date of the contract involved in supply of tendered security HEALs. Affidavit in this regard should be submitted.
- h. The Supplier shall make necessary arrangement to ensure continued supply of HEALs in future as and when required by the Excise Department at the same rate as quoted in the tender until and unless rate is revised.
- i. It shall be obligatory on the part of the successful tenderer to maintain adequate inventory of all raw materials to cater the needs for atleast 30 days.

- j. Inspection of the Production premises of the tenderer may be carried out by the purchaser or the Third Party Agency-appointed by the purchaser. The team shall verify and satisfy themselves regarding the availability of required machineries space etc. at their premises to produce the Excise labels and security as per the terms and conditions stated in document. Furnishing of false information would disqualify the Tenderer.
- k. The suppliers shall not supply the Excise Adhesive Labels approved by the purchaser to anybody else except to the purchaser. The Tenderer shall not have any link with the Distributor or the retail liquor trader in the State of Karnataka. In case of any breach of this condition, the contract shall be liable to be cancelled and further penalty shall be imposed. The Excise Commissioner, Karnataka shall decide the amount of penalty depending on the gravity of breach of terms and conditions of the contract depending on their revenue implications.
- l. The Excise Department shall disqualify the Tenderer who fails to meet one or more of the qualification conditions mentioned above. The Financial Bid of the Tenderer who has been disqualified in the technical bid will not be opened. The decision of the purchaser in this regard is final.
- m. In case, any direct or indirect loss is caused to the Excise Department on account of supplier's intentional or unintentional commission or omission, of an act, which directly or indirectly affects supply of quality of HEALs to Excise Department, the same shall be recovered as per the provision of Terms and Condition here- in-under.
- n. The Successful Tenderer shall not be allowed to sub-contract or sub-let to any outside agency the production process of the tendered product either fully or partially including Master Origination. If the Supplier does so or makes an attempt to do so, his contract will be summarily cancelled with forfeiture of his Security Deposit and/ or Earnest Money Deposit, as the case may be.
- o. The Tenderer shall create a high security environment in the premises of production
- p. The successful tenderer should provide testing gadgets/ accessories at free of cost to the Excise department to verify the HEAL authenticity, in quantity as required by the department from time to time.
- q. No conditional tender will be accepted.

9. Tender Specifications-Technical, Financial and Qualification criteria:

1. The Tenderer should be a security printer having in house facilities of designing, Web Offset printing, Intaglio printing, complete hologram production lines including master making, computerized variable data printing and any other required facilities.
2. The Tenderer should be empanelled by Indian Banks Association (copy of the letter issued by IBA).
3. The Tenderer should have previous experience in the immediately preceding three years in printing and supplying of security items like Excise Adhesive Labels/Bank Cheques/Demand Drafts/Certificate of Deposit/ Lottery Tickets (documentary proof should be provided).
4. The Tenderer should produce a good performance certificate from their clients for whom they have executed similar contracts.
5. The Tenderer should have executed Printing and Supply of High security documents in one single security printing work order not less than Rs. 5.00 crores with requisite security features during the last 1 year. (Necessary documentary proof should be provided).
6. The Tenderer should be an ISO certified Company/Unit.
7. The tenderer should be a manufacturer who must have capability to print and supply atleast 32 crores of Security Labels per month with similar features. The decision of the purchaser with regard to the capacity assessment shall be final.
8. **Financial standings:**
 - a) Average annual turnover of the tenderer should be more than Rs. 78.0 crores during the last three years.
 - b) Tenderer should not have suffered any financial loss for more than one year during the last 3 years.
 - c) Net worth of the tenderer should not have eroded more than 30 % during the last 3 years.

9. The Tenderer should furnish the information on all past supplies and satisfactory performance for both (a) and (b) above, in the prescribed proforma.
10. The Tenderer firm should not be black listed or debarred by any State/Central Government departments/PSUs/ Banks during the last 5 years
11. The Tenderer should have the machinery as per list mentioned in Table 4.
12. Inspection of the Security Press of the Tenderer may be carried out by the purchaser or the Third Party Agency appointed by the purchaser. The team shall verify and satisfy themselves regarding the availability of required machineries/space etc. at their premises to print the Excise Labels and security as per the terms and conditions stated in the tender document. Furnishing of false information would disqualify the Tenderer.
13. The Tenderer shall not supply the Excise Adhesive Labels approved by the purchaser to anybody else except to the purchaser. The Tenderer shall not have any link or interest with the Distributor or the retail liquor trader in the State of Karnataka. In case of any breach of this condition, the contract shall be liable to be cancelled and further penalty shall be imposed. The Excise Commissioner, Karnataka shall decide the amount of penalty depending on the gravity of breach of terms and conditions of the contract depending on their revenue implications.
14. The Excise Department shall disqualify the Tenderer who fails to meet one or more of the pre-qualification conditions mentioned above. The Financial Bid of the Tenderer who has been disqualified in the technical bid will not be opened. The decision of the purchaser in this regard is final.
15. No conditional Tender shall be accepted.

TABLE - 3
CRITERIA FOR PRE-QUALIFICATION

Sl. No.	Pre-Qualification criteria	Supporting documents
1	The Tenderer shall have appropriate registrations namely-GST/CST, Factory License.	Copy of the registration certificate
2	The Tenderer should be empanelled by Indian Banks Association (IBA) to print security instruments.	Copy of the letter issued by IBA to be enclosed.
3	Average annual turnover of the tenderer should be more than Rs. 78 crores during the last three years.	Audited Balance Sheet and Profit & Loss Account duly certified by the Company Auditor shall be uploaded.
4	The Tenderer should not have been blacklisted by any Government Department/Government Body/PSU during the last 5 years	Affidavit to be enclosed
5	The Tenderer should not have suffered any financial loss for more than one year during the last 3 years.	Certificate from Chartered Accountant to be enclosed.
6	Net worth of the Tenderer should not have eroded more than 30% during the last 3 years	Certificate from Chartered Accountant to be enclosed
7	The Tenderer should have infrastructure to produce at least 32 crores Security Labels as per the specifications of the tender. (As per below list).	Supporting Documents should be attached
8	The Tenderer should have executed printing & supply of high security documents in one single work order of not less than Rs.5 crores with requisite security features during the last 1 year	Work order and certificate from client.
9.	The Tenderer should have been registered with HOMAI	Supporting document should be attached
10	The Tenderer should have infrastructure to produce atleast 32 crores HOLOGRAMS per month	Supporting Documents should be attached

TABLE - 4
LIST OF MACHINERY

Sl. No.	Criteria
	Capability and infrastructure
1	Pre-press facility and Computer to Plate making. Web Offset printing machines,
2	Ink jet printing for check digit, serial numbering and bar-coding machines.
3	Hologram master making, manufacturing facility. Electro Forming, embossing, coating, slitting, hot foil stamping.
4	Intaglio printing machines and Intaglio Plate Making facility.
5	Machinery for rollmaking and inspection
6	Any other machinery to fulfill the tender requirements.

Appropriate documents to prove the ownership and their capacities shall have to be provided by the Tenderer.

TABLE - 5
SPECIFICATIONS OF THE ADHESIVE

01	Type	Hot Melt Adhesive which can withstand the temperature of $70^{\circ}\text{C} \pm 10\%$ suitable for affixation partly on bottle cap and partly on the neck of the glass bottle
02	Thickness	20 gsm $\pm 10\%$
03	Grade	Food Grade

TABLE - 6
SPECIFICATION OF THE RELEASE PAPER

01	Thickness	60 gsm $\pm 5\%$
02	Coating	Silicon based solventless coating

TABLE - 7
SPECIFICATIONS OF THE DIECUTTING

01	Cut	Security cuts in the form of "T" and "Diamond" should be provided at both the ends of the Hologram for better affixation on the substrate and to make sure that the holograms is completely damaged in the event of trying to remove it from its original position.
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TABLE - 8
OTHER SPECIFICATIONS

01	Form of supply	Spoolform with 3.0 ± 0.50 mm gap between two Labels horizontally and $1.5 \text{mm} \pm 0.50$ mm gap vertically suitable for automatic application.
02	Inkjet/laser numbering	Each Label has to be serially numbered using inkjet and laser numbering to ensure proper accountability of the same.
03	Packaging	The Labels shall be supplied in continuous spool form having about 10,000 Labels on a spool for both manual and automatic application. One or more spools as may be specified by the Excise Commissioner shall be packed in one carton for proper transit. Each carton shall be affixed with packing label providing the details of contents.

TABLE - 9
CRITERIA FOR PRE-QUALIFICATION

Sl.No.	Pre-Qualification criteria	Supporting documents
1	The Tenderer shall have appropriate registrations namely-GST/CST, Factory License.	Copy of the registration certificate
2	The Tenderer should be registered with HOMAI.	Supporting document should be submitted

Sl.No.	Pre-Qualification criteria	Supporting documents
3	Average annual turnover of the Tenderer should be more than Rs. 5 crores during the last three years.	Audited Balance Sheet and Profit & Loss Account duly certified by the Company Auditor shall be uploaded.
4	The Tenderer should not have been blacklisted or debarred by any Government Department/Government Body/PSU during the last 5 years	Affidavit to be enclosed
5	The Tenderer should not have suffered any financial loss for more than one year during the last 3 years.	Certificate from Chartered Accountant to be enclosed.
6	Net worth of the tenderer should not have eroded more than 30% during the last 3 years	Certificate from Chartered Accountant to be enclosed.
7	The Tenderer should have infrastructure to produce at least 32 crores HOLOGRAMS as per the specifications of the tender.	Supporting Documents should be attached
8	The Tenderer should have executed printing & supply of security labels in one single work order of not less than Rs.0.50 crores with requisite security features during the last 1 year	Work order and certificate from client.

TABLE - 10
LIST OF MACHINERY FOR MAKING THE HOLOGRAM

Sl.No.	Criteria
	Capability and infrastructure
1	Designing and Pre-press facility
2	Machineries for Hologram master making, Shim making, Electroforming, Embossing, Coating, Slitting, Hot Foil Stamping.
3	Ink jet printing for check digit, serial numbering and bar-coding machines.
4	Machinery for rollmaking and inspection
5	Any other machinery to fulfill the tender requirements.

Appropriate documents to prove the ownership and their capacities shall have to be provided by the Tenderer. No operations shall be outsourced.

Government of Karnataka has issued model tender documents vide GO No. FD 9 PCL 2004(II), dated 6-8-2005 where in the Form No.KG-2 is for procurement of goods and equipment which suits the procurement of the EALs. This model tender document may be adopted with the Schedule of requirements, Technical Specifications and Qualification criteria for the procurement of the Excise Adhesive Labels of Hybrid variety.

10. TO EXAMINE THE POSSIBILITY OF COMPUTERISATION OF THE WHOLE PROCESS INCLUDING TRACK & TRACE SYSTEM:

The Department of Excise in Karnataka has to regulate the distribution of about 32 crore IML containers and about 3 crore Beer containers every month, generating a monthly revenue of over Rs 1,500 crores. Under the present situation of limited workforce and manual operations, the Department obviously has to struggle hard to plug possible revenue leakage and to ensure the safety of the consumer.

The Department is definitely in need of a well structured, transparent and robust distribution management system to regulate the liquor trade in Karnataka, starting from 'raising the indents of labels by the Distilleries to the labels on the bottle sold at the retail outlet'.

The objective should be to make the system more transparent, efficient, effective and accountable with the help of Information and Communication Technology. This project should cover the following elements of different operations and shall be done online.

- Raising of the indents by the Distilleries.
- Production planning.
- Scrutiny and sanction by the department.
- Issue of the labels to the Distilleries.
- Stocks received, consumed and the balance quantity at Distilleries.

- Track and Trace system.
- Revenue collection, Penalty impositions etc.
- Interlinking the Department, KSBCL, Warehouses, Distilleries and Retail shops.
- Shall be GS1 compliant.

The system should prevent any leakage and should provide real time information to the Excise Department. The system should enable the Department to track the source of each bottle that is sold at the retail outlets in Karnataka.

Such Supply Chain Information System shall work on GS1 compliant Barcodes placed at the case and bottle level. These Barcodes can be generated and printed on the case/bottle by the printers/liquor manufacturing Distillery as per the specifications

Ultimately the Supply Chain Information Management System SCIMS is expected to provide following benefits:

- Better revenue mobilization through reduction in smuggling and brand pushing of liquor.
- Automation of the issue of transport permits, import permits, no objection certificates etc.,
- Generation of timely, intelligence reports and comparisons will help managerial control, inventory management, and improved efficiency and enable revenue record reconciliation on daily basis.
- Providing transparency to the department and its business with its clients.
- Assessment of Excise duty to be paid could be done in real time basis.
- Online status tracking and enquiry facility
- Will also bring down complexity of security features to be incorporated in the EAL and whereby reducing the cost of production of EAL and the cost of enforcement.

The production of Excise Adhesive Labels requires to be integrated with computerization. Though the Committee is aware of the requirements expected in the computerized system it is not having the expertise to translate the Requirements in two Specifications therefore it is recommended to call for the two stage tenders as mentioned here under

- In the first stage Expression Of Interest (EOI) will be invited from the prospective bidders. They will be required to express their interest to participate in the tenders and shall provide their modus operandi of implementation of the project. They will be required to make the presentations and explain the specifications of their solutions and how they would fulfill the requirements.

Their presentation shall also include the information on the following parameters which shall enable to formulate the RFP for Tender to be floated:-

1. Compatibility of hardware and proposed software
 2. Hardware specifications at the level of distillery, retailer and gets installation
 3. Capacity and specifications of main servers/web servers
 4. Type of software whether it should be cloud based/Oracle/Service Oriented Architecture (SOA) based and its selection criteria
 5. Decision of the agency who will procure and provide Hardware to Excise Department KSBCL/Retail Outlets
 6. Decision of the agency who will procure and provide Network (MPLS connectivity) to Excise Department KSBCL/Retail Outlets, should be independent and close circuit specifically for track and trace system.
- The Department will prepare the tender document considering the presentations made and specifications that would suit the best for the requirements.
 - The main tender process will be in two bid system with technical evaluation and financial year evaluation.

f) **Possibility of Mechanical Application of labels on liquor containers and carton boxes**

During the visits to the various Distilleries in different states, the Committee observed that a few states have adopted manual application and a few states have adopted mechanical application of EALs on the cap of the liquor containers. The trend in the industry is changing in favour of tetrapack containers especially for lower volume packings namely, 60 ml, 90 ml. It is also a need of the day to adopt mechanical application of the labels on these kinds of patterns also. The Committee did not get an opportunity to visit the plants where the labels are applied mechanically on the tetrapack containers. However in the context of advancement of Mechanical Engineering Technology the availability of such equipments should be possible.

Karnataka, at present is continuing manual application of labels both on bottles and tetrapack containers.

Manual application involves huge manpower and also it reduces the output of the bottling/tetrapack plant considerably. The Committee is convinced about the mechanical application of both Polyester based and Paper based EALs. It was also confirmed that the wastage of labels is relatively less in mechanical application compared to manual application. However, following changes are to be made to the existing EALs to make it compatible for mechanical application.

1. Size of the EAL needs to be decreased.
2. EAL should be supplied in roll form.
3. Commonly followed practice in India is to apply EALs mechanically on head and shoulder of the bottle.
4. Minor changes with regard to Control Label concept needs to be brought in. The control labels will be generated by scanning the barcodes on the containers in the distilleries.
5. In Mechanical application after applying the labels at the time of packing, all the Barcodes on the top of the containers would be scanned and a Master Control label would be generated accordingly.

The Master Control Label would contain information of the containers that have been packed in the carton. This label would have an ID Linear Barcode from which, we can fetch the information on one click showing how many containers are inside the box and summary of the containers.

6. Position of 2D barcode in the label should be chosen in such a way that while affixing the label automatically on the liquor bottle, 2D bar code is placed on the top of the bottle to enable easy scanning.

Considering the advantages of mechanical application, the Committee recommends that the mechanical application of EALs shall be resorted to and accordingly the specifications are drafted to suit this Mechanical application requirement.

11. SUMMARY OF RECOMMENDATIONS

The Committee after detailed analysis proposes the following recommendations

- a. Hybrid labels (Paper based label with Hologram) possess two important significant features of Intaglio Printing and eco-friendliness. While the polyester labels possess significant feature of providing tamper evidence feature and being resistant to moisture and water. The bio-degradable polyester films are likely to be commercially viable. The computerisation also provides certain level of security at various stages. Under these circumstances the Government may consider Paper based Hybrid Labels or bio-degradable polyester based holographic labels (HEAL).
- b. The Committee has recommended the separate specifications for both HEAL and Hybrid in the report if adopted would make both equally acceptable. However, once the total computerization is implemented the level of security features can be re-examined in case Paper based Hybrid Labels or bio-degradable polyester based holographic labels (HEAL).
- c. Considering the advantages of mechanical application, the Committee recommends that the mechanical application of EALs may be resorted to. Accordingly, the specifications of the labels are recommended to suit the mechanical application requirement.
- d. The Committee is of the view that the computerization is the need of the hour owing to its inherent advantages. Accordingly the tender procedure as recommended in the report may be adopted.

- e. However, considering the security requirements and the volume of production, value enhancement of the product etc., Committee recommends that Production of EALs and HEAL may be executed in a Government organization like Government Security Press, in a secured and totally in-house manner. Till such time the tender procedures may be adopted as recommended in the report.

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List of Abbreviations

E.A.L.	Excise Adhesive Label
HEAL	Holographic Excise Adhesive Label
SCIMS	Supply Chain Info Management System
EOI	Express of Interest
RFP	Request For Proposal
SOA	Service Oriented Architecture
IBA	Indian Bank Association
ISO	International Standard Organisation
HOMAI	Hologram Manufacturers Association Of India
MC&A	Marketing Communication and Advertising Limited
TOR	Terms Of Reference
Hybrid Labels	Paper Based Label with Hologram