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eGalaxTouchManager+

User Guide

For EETI Orion Family

EETI CONFIDENTIAL

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FOR 深圳市南泉電子科技有限公司(禾伸堂客戶)

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1. Introduction

Orion is a powerful firmware kernel for touch system developed and designed by EETI. This kernel supports EETI's new generation touch controller ICs, including EXC80H84, EXC80H46, EXC86H80 and EXC86H128 solution families.

eGalaxTouchManager+ (or TM+) is a full featured tuning program with simplicity and efficacy tailor-made for Orion and its IC families. Engineer and user can employ TM+ to optimize the system performance for those systems designed and assembled following both EETI's Sensor Design Rule (SDR) and System Assembly Rule (SAR). This user guide will demonstrate and guide through the steps of auto tuning process and parameter configuration.

2. Preparation

2.1. System Requirements

- a. Available disk space: 512MB
- b. Operating system: Windows 7 or above

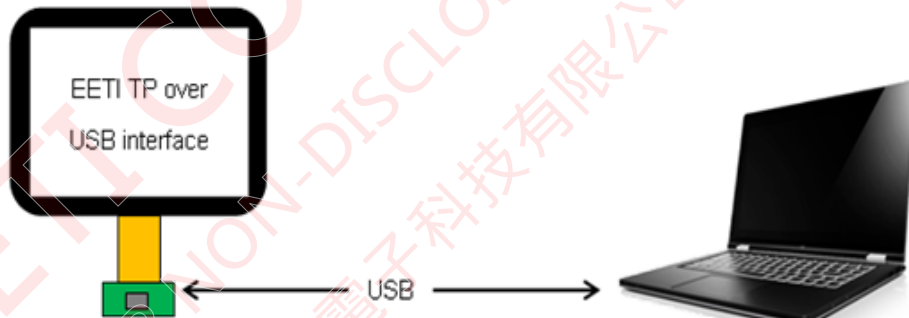


Figure 1.1: Device connection (USB interface)

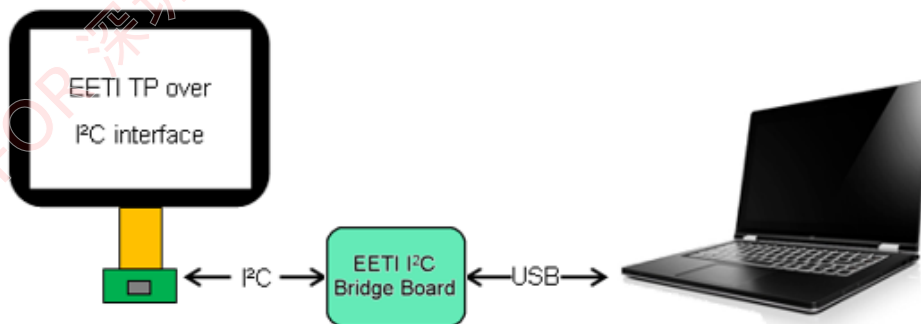
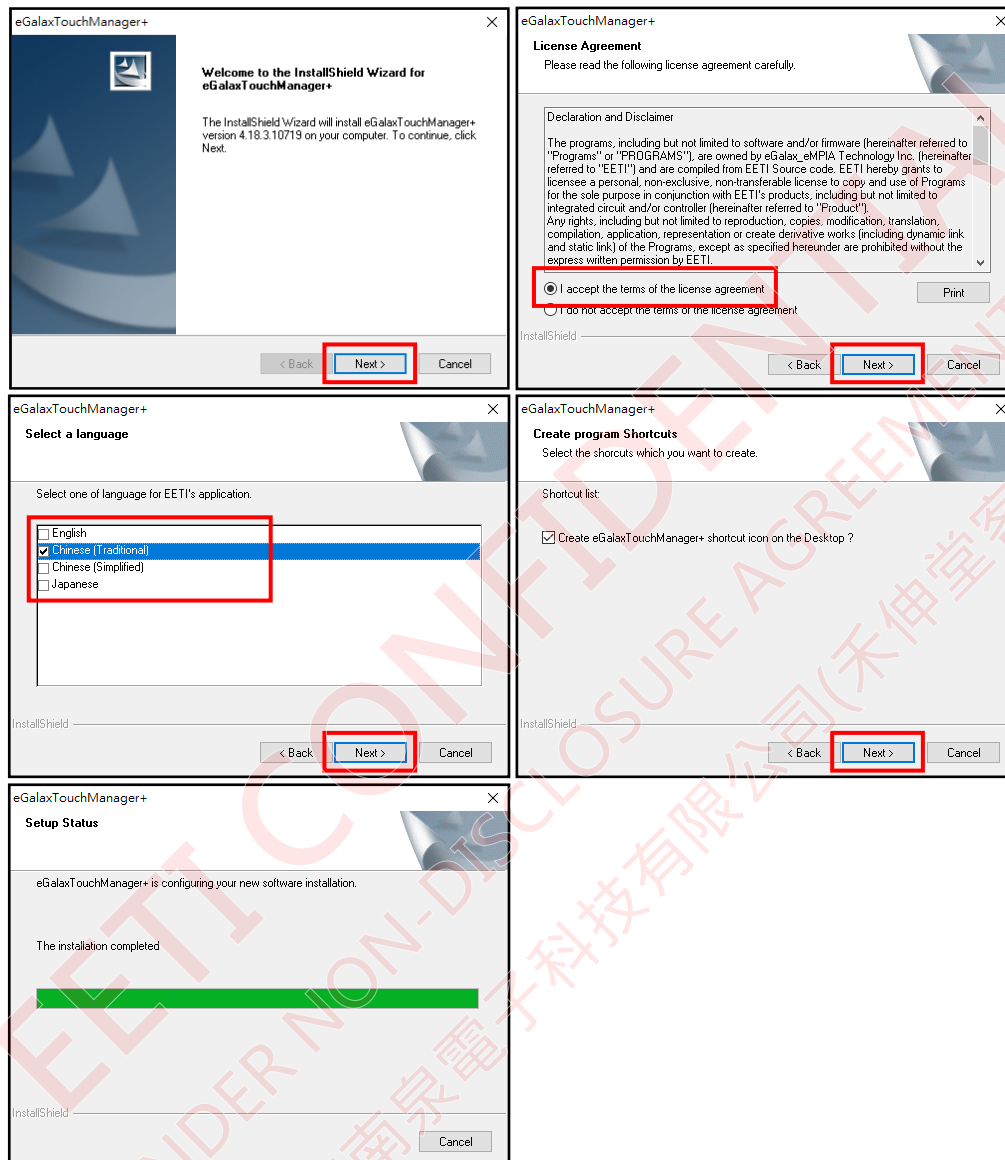


Figure 1.2: Device connection (I²C interface)

2.2. Software Installation

Go to “eGalaxTouch Manager+” folder and execute “setup.exe”. Follow the steps.



Once the installation process is complete, you will find a shortcut on the desktop to launch the TM+.



2.3. System Setup

To minimize noise interference during the tuning process, please refer to System Assembly Rule to set up the touch sensor and controller properly.

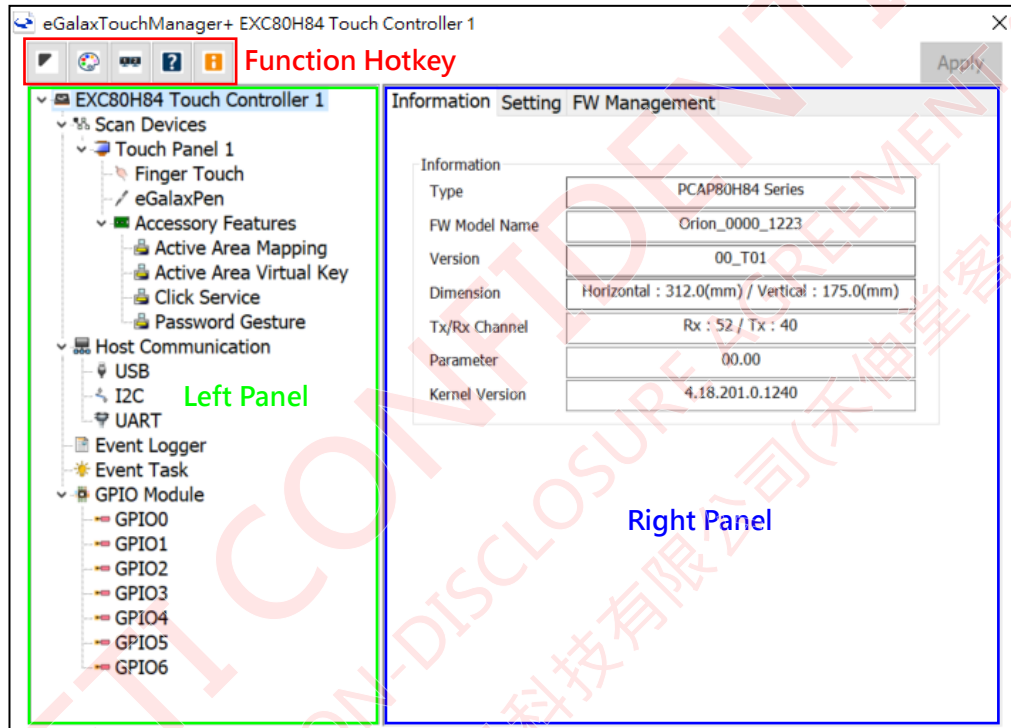
2.4. Glossary

Terms	Definition
Orion	The powerful firmware kernel for touch system developed and designed by EETI. It supports multitude of functions for a wide range of applications.
TM+	TM+ is a full-featured tuning programming designed for Orion and its IC families.
Touch controller	EETI's touchscreen controllers developed based on Orion kernel.
Functional devices	Functions supported by Orion and TM+ are categorized as Scan Devices, Host Communication, Event Logger, Event Task, and GPIO Module.
Scan devices	Scan Device refers to any device that uses touch-sensing unit.
Scan Management	The built-in resource allocation management mechanism of Orion. User can manage any scan device performance and allocate touch controller resource effectively to reach the best overall performance via TM+.
Working States	Provided by Orion's Scan Management. User can define the active/idle time of each working state for power saving purpose.
Power Management	The built-in power conservation mechanism of Orion. User can select from 4 predefined Sleep States to save power in accordance with Host's Wake-up schedule.
Sleep States	<p>Provided by Orion's Power Management.</p> <p>From SleepState0~3, the higher the number is, the more dormant the device is.</p> <p>SleepState0 (SS0): Fully powered working state.</p> <p>SleepState1 (SS1): Performance is the same as SS0. The device can remotely wake up the host*.</p> <p>SleepState2 (SS2): Lower power consumption and lower scanning rate, and the device can remotely wake up the host.</p> <p>SleepState3 (SS3): The deepest sleep state. At this state, device does not remotely wake up host.</p> <p>* A device can remotely wake up the host if:</p> <ol style="list-style-type: none"> 1. The device has capability to do remote wakeup. 2. The remote wakeup is enabled in sleep settings.

Terms	Definition
Host Communication	EETI controller supports all common protocols for communicating with Host System including USB, I2C and UART.
GPIO	General Purpose I/O. EETI controller IC has numbers of GPIO for customization. The system integrator may use these GPIO for system features integration for their application purpose.

3. How to Use eGalaxTouchManager+

EETI Orion Family supports a multitude of features for a wide range of applications. It will detect the touch controller in the system automatically and list the supported functions. The main window of TM+ is shown below. On the top, there are the function hotkeys. The Left Panel is a tree-view style for controller functions. By selecting the function nodes in the left panel, the detailed settings will be displayed in the right panel.

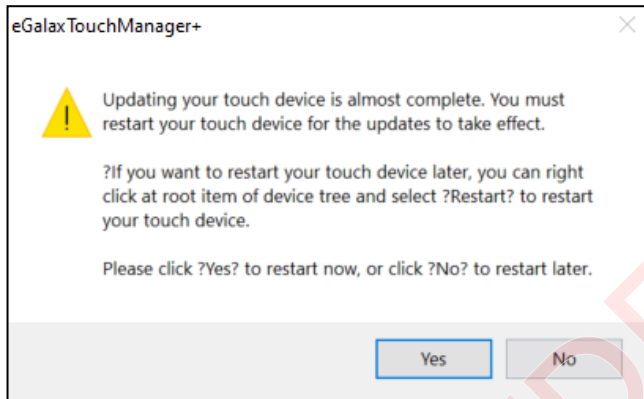


Function HotKey:

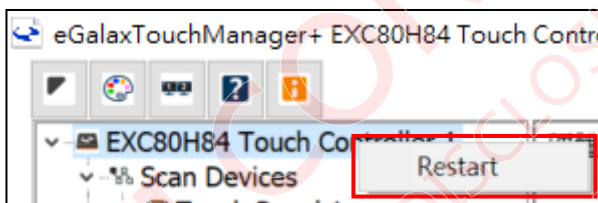
	Fold / unfold the tree of functions in the Left Panel.
	Open the draw test page. This page is in blue-green, the touch points of different fingers will be displayed in different colours, and the report rate of each touch point will be displayed in the upper left corner of the page.
	This function is for pairing the touch device and display screen.
	Open the TM+ user guide folder.
	Show the TM+ version and licence information.

3.1. Restart Controller

The controller should be restarted after some specific function settings had been changed. When applying these changes, a prompt window will pop up asking whether to restart immediately.



You can also restart the controller by right-clicking on the function node shown as below and select Restart.

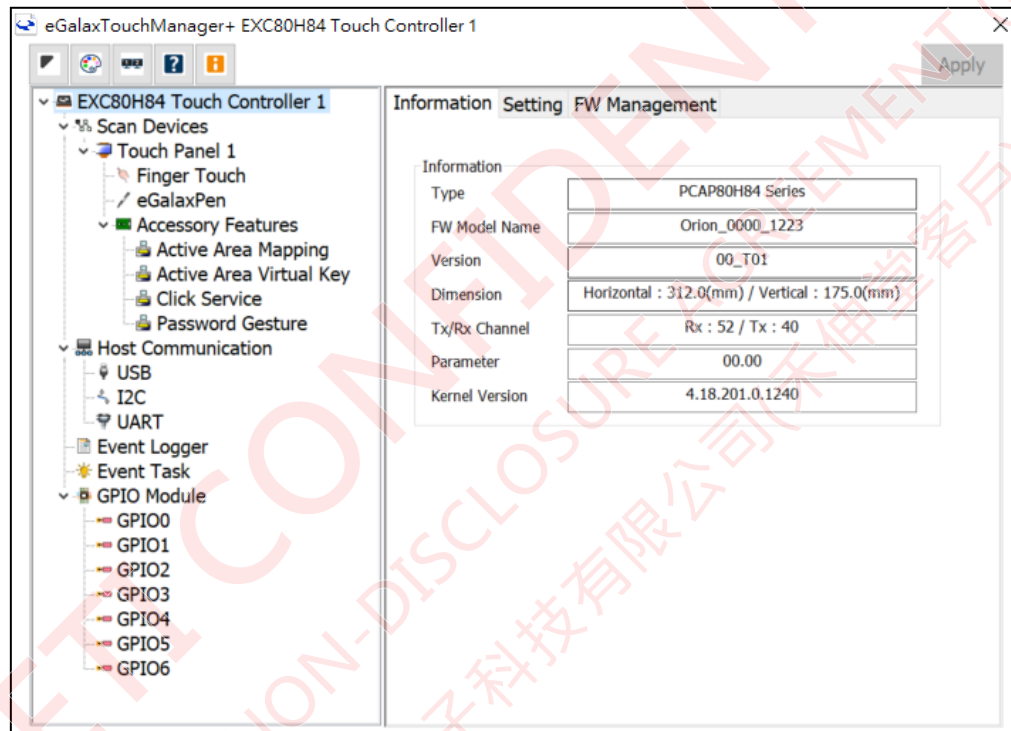


4. Controller Information

In the TM+ left panel, each connected controller will be represented into a tree-view structure. In the device root, there are controller Information, Setting and FW Management tabs.

4.1. Controller \ Information

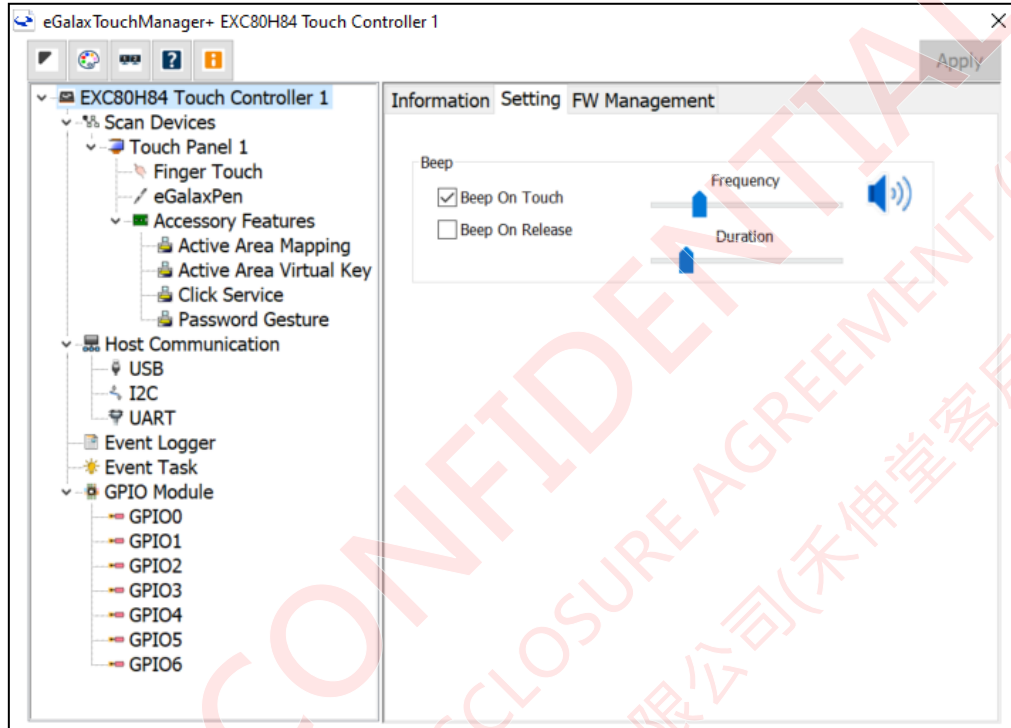
This page shows controller information and firmware information.



Information	
Type	EETI PCAP touch controller type.
FW Model Name	The model name of the project. The four-digit number in the middle refers to Company ID.
Version	The firmware version of the project.
Dimension	The dimension of active area of touch sensor.
Tx/Rx Channel	The number of Tx and Rx channels currently in use.
Parameter	The minor version of parameters.
Kernel Version	The kernel version of the touch firmware.

4.2. Controller \ Setting

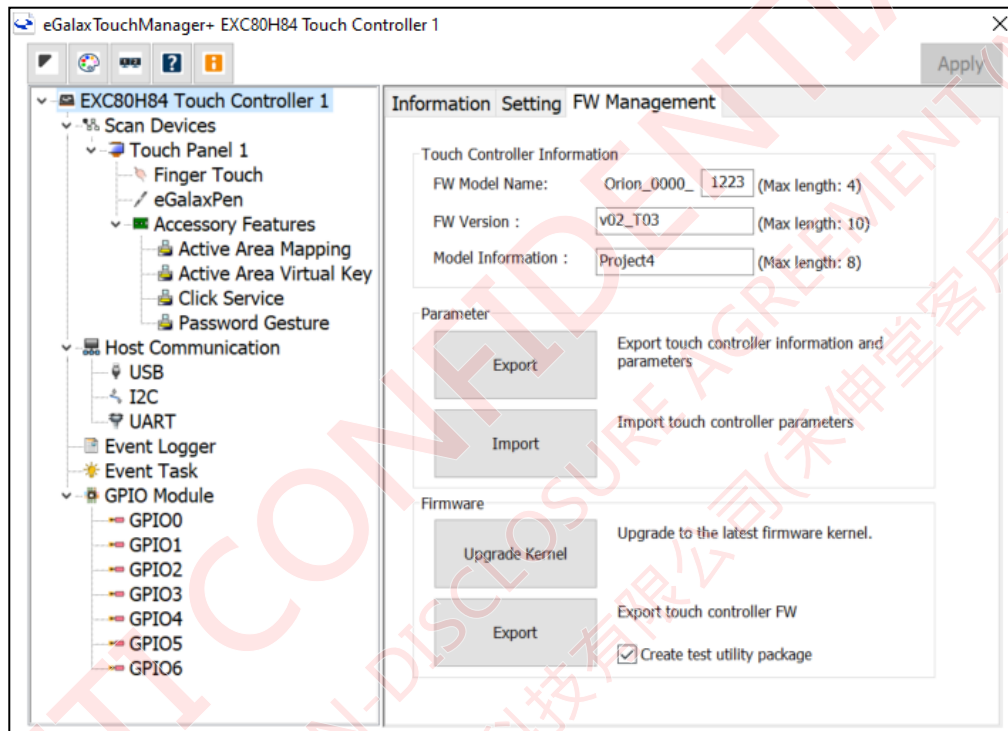
When TM+ is installed, it will set up a daemon program: **eGalaxTouchMon** running in the background. The **eGalaxTouchMon** will monitor the controller touch event and translate them into system beep sound.



Controller Setting	
Beep On Touch	Send the beep sound when a finger contacts the touch screen.
Beep on Release	Send the beep sound when a finger leaves the touch screen.
Frequency	The frequency of the beep sound.
Duration	The duration of the beep sound.

4.3. Controller \ FW Management

In the firmware management page, user can modify firmware string and manage the parameters and firmware kernel. During the tuning process, user can **Export** the parameters for backup or **Import** the parameters for recovery. At the final stage of the tuning process, user can **Export** the firmware image and create a Test Utility package for production. The Test Utility is called eGalaxWorks.

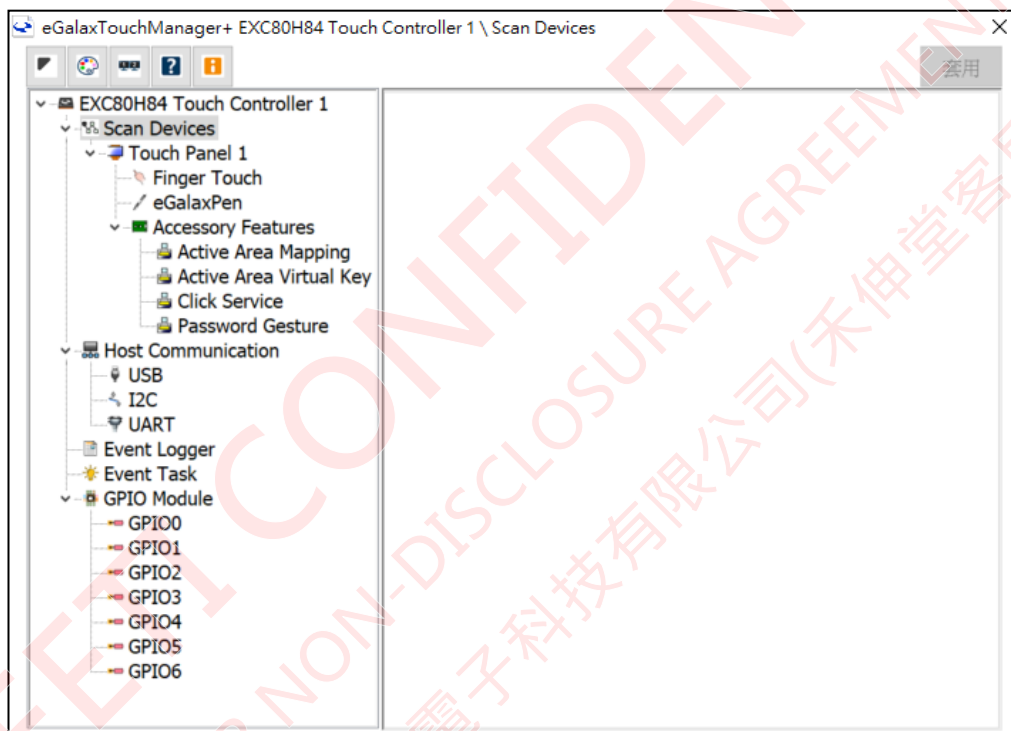


Touch Controller Information	
FW Model Name	Set model name Orion_0000_ --- up to 4 digits
FW Version	Set firmware version up to 10 characters.
Model Information	Set model information up to 8 characters.
Parameter	
Export	Export the parameter file from the touch controller to C:\Users\[UserName]\Documents\EETI\TouchManager+Export\...
Import	Import the parameter file and write into the touch controller.
Firmware	
Upgrade Kernel	If necessary, the firmware kernel can be upgraded to the latest version supported by eGalaxTouchManager+.
Export	Export the firmware image and Test Utility Package* (*Need to check the box). C:\Users\[UserName]\Documents\EETI\TouchManager+Export\...

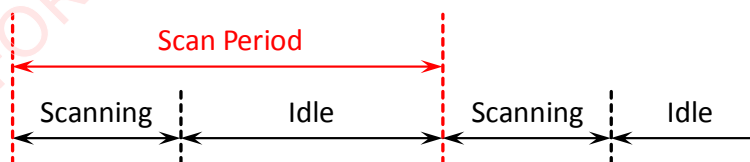
5. Devices, Categories and Settings

The supported functions will be organized into categories and items under the device root. The categories are: Scan Devices, Host Communication, Event Logger, Event Task and GPIO Module. These contents might vary from different combinations of touch controller and firmware kernel.

5.1. Scan Devices



EETI Orion Family touch solution provides several input sensing functions, e.g. Touch sensing, Virtual key sensing, eGalaxPen sensing...etc. From user perspective each sensing method is like a standalone **Scan Device** working separately to provide specific function. All the Scan Devices in the same category share the same sensing and scanning resource of touch controller, therefore the allocation of resources is crucial.



In order to optimize the performance and resource allocation, the two management mechanisms: **Scan Management** and **Power Management** need to be well configured. **Scan Management** handles the scan period of a **Scan Device**. **Scan Management** defines five working states: **W0~W4**, each contains "Scan period" and "Idle to next state" settings.

W0 indicates fully active state, when the **Scan Device** stays idle (no input event is being detected) for a period of time, it will move to **W1**. If the Scan Device stays in **W1** and detects no input event in the “idle to next state” period of time, it will move to **W2**. In the end it will stop at **W4**. In any working state, if the **Scan Device** detects an input event, it will switch back to **W0**.

When the host enters sleep mode, **Power Management** will handle the sleep state of **Scan Device**. Orion firmware kernel supports four sleep states from **SleepState0** to **SleepState3**. The higher sleep state is, the less power consumption and less responsive.

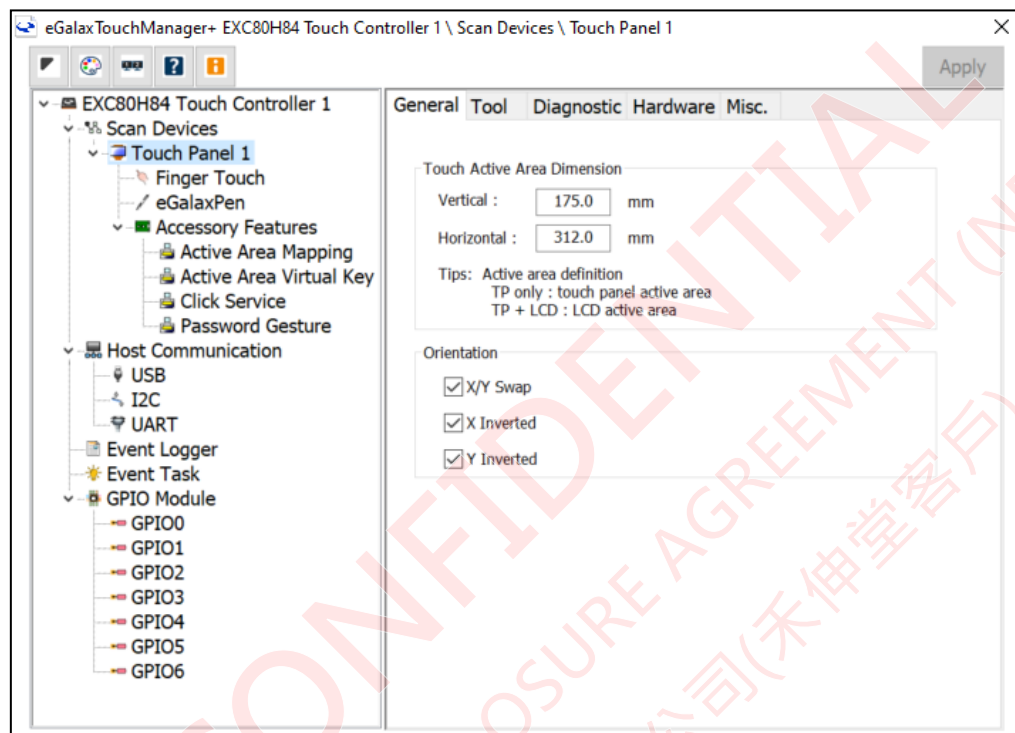
- i. **SleepState0:**
Fully powered working state.
- ii. **SleepState1:**
The performance is the same as SS0. The device can remotely wake up the host*.
- iii. **SleepState2:**
Lower power consumption and lower scanning rate, and device can remotely wake up the host*.
- iv. **SleepState3:**
The touch controller will stop scanning the sensor and will not wake up the host remotely.

* A device can remotely wake up the host if:

1. The device has capability to do remote wakeup.
2. The remote wakeup is enabled in sleep settings of host.

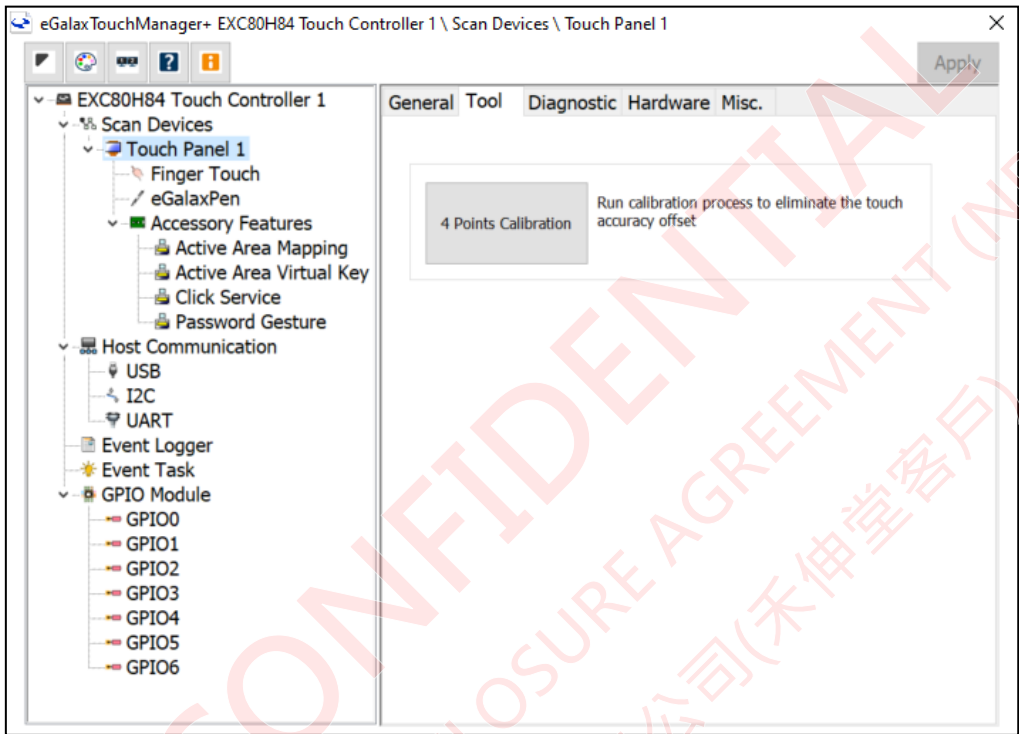
5.2. Scan Devices \ Touch Panel

5.2.A. Touch Panel \ General



Touch Active Area Dimension	
Vertical / Horizontal	Set the touch sensor active area dimension.
Orientation	
X/Y Swap	Swap the X and Y coordinate.
X Inverted	Invert X coordinate.
Y Inverted	Invert Y coordinate.

5.2.B. Touch Panel \ Tool

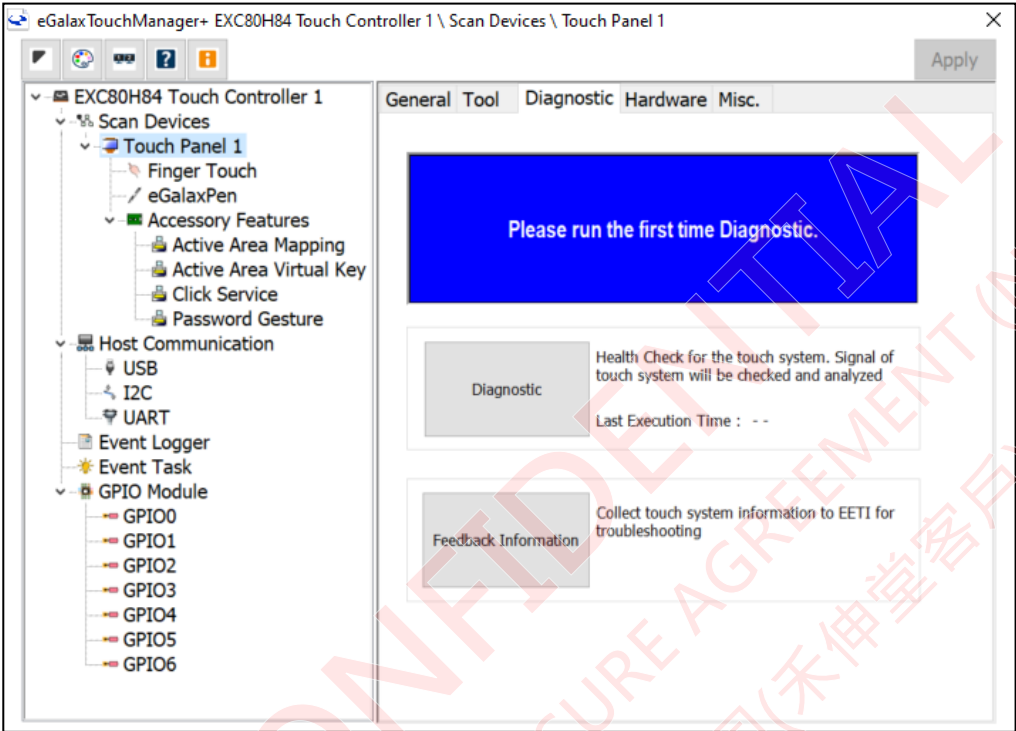


Tool

4 Points Calibration

Run calibration process to eliminate the touch accuracy offset.

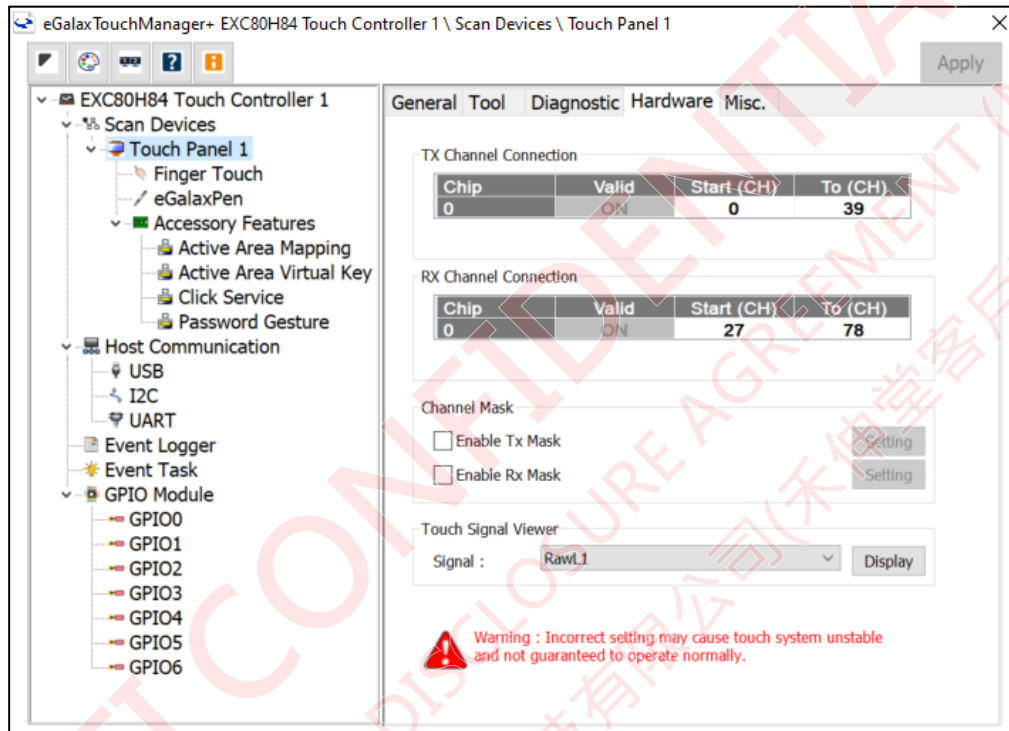
5.2.C. Touch Panel \ Diagnostic



Diagnostic	
Diagnostic	A built-in Health Check application that helps user check sensor status, parameter feasibility, and touch performance. User can run Diagnostic and send the reports to EETI for evaluation.
Feedback Information	<p>If user encounters any issue during the operation of TM+, such as crashing in the signal learning process, failing to apply the settings, etc., please run Feedback Information and send the report to EETI for analysis.</p> <p>The reports will be stored at C:\Users\[UserName]\Documents\EETI\TouchManager+Report\</p>

5.2.D. Touch Panel \ Hardware

This page shows the channel connection between touch sensor and touch controller. TM+ can automatically detect the connected Tx (driving) channels and Rx (sensing) channels of the touch sensor. User might have to configure the channel connection manually for those sensors not designed following EETI's SDR.



Channel Connection	
Tx/Rx Channel Connection	Manual Configuration of Channel Connection
Channel Mask	<p>Set up the channels to be disabled.</p> <div> <div> <p>Tx Channel Setting</p> <p>Setting-0</p> <p>Channel Number: 7</p> <p><input checked="" type="checkbox"/> Finger Touch</p> <p>Policy: Policy-0</p> <p><input checked="" type="checkbox"/> APen</p> <p>Policy: Policy-0</p> <p>Exit</p> </div> <div> <p>Rx Channel Setting</p> <p>Setting-0</p> <p>Channel Number: 4</p> <p><input checked="" type="checkbox"/> Finger Touch</p> <p>Policy: Policy-0</p> <p><input checked="" type="checkbox"/> APen</p> <p>Policy: Policy-0</p> <p>Exit</p> </div> </div>

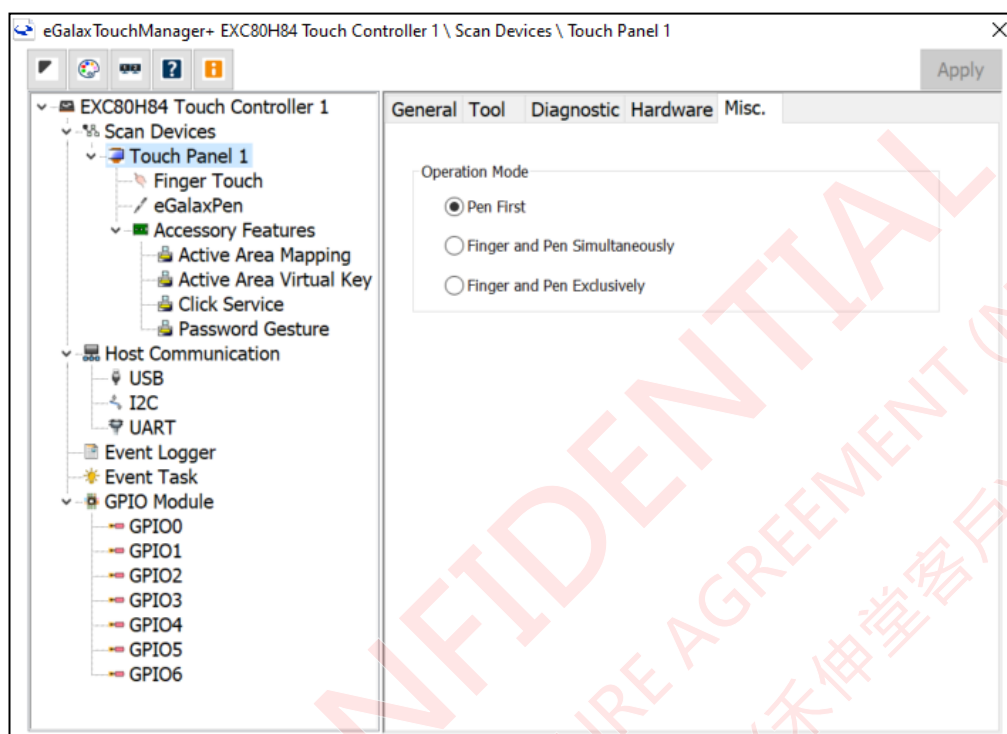
Touch Signal Viewer

Touch Signal Viewer

The disabled channels will be highlighted in the touch signal viewer.

Ch	MT	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31	S32	S33	S34	S35	S36	S37	S38	S39	S40	S41	S42	S43	S44	S45	S46	S47	S48	S49	S50	S51	S52	S53	S54	S55	S56	S57	S58	S59	S60	S61	S62	S63	S64	S65	S66	S67	S68	S69	S70	S71	S72	S73	S74	S75	S76	S77	S78	S79	S80	S81	S82	S83	S84	S85	S86	S87	S88	S89	S90	S91	S92	S93	S94	S95	S96	S97	S98	S99	S100	S101	S102	S103	S104	S105	S106	S107	S108	S109	S110	S111	S112	S113	S114	S115	S116	S117	S118	S119	S120	S121	S122	S123	S124	S125	S126	S127	S128	S129	S130	S131	S132	S133	S134	S135	S136	S137	S138	S139	S140	S141	S142	S143	S144	S145	S146	S147	S148	S149	S150	S151	S152	S153	S154	S155	S156	S157	S158	S159	S160	S161	S162	S163	S164	S165	S166	S167	S168	S169	S170	S171	S172	S173	S174	S175	S176	S177	S178	S179	S180	S181	S182	S183	S184	S185	S186	S187	S188	S189	S190	S191	S192	S193	S194	S195	S196	S197	S198	S199	S200	S201	S202	S203	S204	S205	S206	S207	S208	S209	S210	S211	S212	S213	S214	S215	S216	S217	S218	S219	S220	S221	S222	S223	S224	S225	S226	S227	S228	S229	S230	S231	S232	S233	S234	S235	S236	S237	S238	S239	S240	S241	S242	S243	S244	S245	S246	S247	S248	S249	S250	S251	S252	S253	S254	S255	S256	S257	S258	S259	S260	S261	S262	S263	S264	S265	S266	S267	S268	S269	S270	S271	S272	S273	S274	S275	S276	S277	S278	S279	S280	S281	S282	S283	S284	S285	S286	S287	S288	S289	S290	S291	S292	S293	S294	S295	S296	S297	S298	S299	S300	S301	S302	S303	S304	S305	S306	S307	S308	S309	S310	S311	S312	S313	S314	S315	S316	S317	S318	S319	S320	S321	S322	S323	S324	S325	S326	S327	S328	S329	S330	S331	S332	S333	S334	S335	S336	S337	S338	S339	S340	S341	S342	S343	S344	S345	S346	S347	S348	S349	S350	S351	S352	S353	S354	S355	S356	S357	S358	S359	S360	S361	S362	S363	S364	S365	S366	S367	S368	S369	S370	S371	S372	S373	S374	S375	S376	S377	S378	S379	S380	S381	S382	S383	S384	S385	S386	S387	S388	S389	S390	S391	S392	S393	S394	S395	S396	S397	S398	S399	S400	S401	S402	S403	S404	S405	S406	S407	S408	S409	S410	S411	S412	S413	S414	S415	S416	S417	S418	S419	S420	S421	S422	S423	S424	S425	S426	S427	S428	S429	S430	S431	S432	S433	S434	S435	S436	S437	S438	S439	S440	S441	S442	S443	S444	S445	S446	S447	S448	S449	S450	S451	S452	S453	S454	S455	S456	S457	S458	S459	S460	S461	S462	S463	S464	S465	S466	S467	S468	S469	S470	S471	S472	S473	S474	S475	S476	S477	S478	S479	S480	S481	S482	S483	S484	S485	S486	S487	S488	S489	S490	S491	S492	S493	S494	S495	S496	S497	S498	S499	S500	S501	S502	S503	S504	S505	S506	S507	S508	S509	S510	S511	S512	S513	S514	S515	S516	S517	S518	S519	S520	S521	S522	S523	S524	S525	S526	S527	S528	S529	S530	S531	S532	S533	S534	S535	S536	S537	S538	S539	S540	S541	S542	S543	S544	S545	S546	S547	S548	S549	S550	S551	S552	S553	S554	S555	S556	S557	S558	S559	S560	S561	S562	S563	S564	S565	S566	S567	S568	S569	S570	S571	S572	S573	S574	S575	S576	S577	S578	S579	S580	S581	S582	S583	S584	S585	S586	S587	S588	S589	S590	S591	S592	S593	S594	S595	S596	S597	S598	S599	S600	S601	S602	S603	S604	S605	S606	S607	S608	S609	S610	S611	S612	S613	S614	S615	S616	S617	S618	S619	S620	S621	S622	S623	S624	S625	S626	S627	S628	S629	S630	S631	S632	S633	S634	S635	S636	S637	S638	S639	S640	S641	S642	S643	S644	S645	S646	S647	S648	S649	S650	S651	S652	S653	S654	S655	S656	S657	S658	S659	S660	S661	S662	S663	S664	S665	S666	S667	S668	S669	S670	S671	S672	S673	S674	S675	S676	S677	S678	S679	S680	S681	S682	S683	S684	S685	S686	S687	S688	S689	S690	S691	S692	S693	S694	S695	S696	S697	S698	S699	S700	S701	S702	S703	S704	S705	S706	S707	S708	S709	S710	S711	S712	S713	S714	S715	S716	S717	S718	S719	S720	S721	S722	S723	S724	S725	S726	S727	S728	S729	S730	S731	S732	S733	S734	S735	S736	S737	S738	S739	S740	S741	S742	S743	S744	S745	S746	S747	S748	S749	S750	S751	S752	S753	S754	S755	S756	S757	S758	S759	S760	S761	S762	S763	S764	S765	S766	S767	S768	S769	S770	S771	S772	S773	S774	S775	S776	S777	S778	S779	S780	S781	S782	S783	S784	S785	S786	S787	S788	S789	S790	S791	S792	S793	S794	S795	S796	S797	S798	S799	S800	S801	S802	S803	S804	S805	S806	S807	S808	S809	S810	S811	S812	S813	S814	S815	S816	S817	S818	S819	S820	S821	S822	S823	S824	S825	S826	S827	S828	S829	S830	S831	S832	S833	S834	S835	S836	S837	S838	S839	S840	S841	S842	S843	S844	S845	S846	S847	S848	S849	S850	S851	S852	S853	S854	S855	S856	S857	S858	S859	S860	S861	S862	S863	S864	S865	S866	S867	S868	S869	S870	S871	S872	S873	S874	S875	S876	S877	S878	S879	S880	S881	S882	S883	S884	S885	S886	S887	S888	S889	S890	S891	S892	S893	S894	S895	S896	S897	S898	S899	S900	S901	S902	S903	S904	S905	S906	S907	S908	S909	S910	S911	S912	S913	S914	S915	S916	S917	S918	S919	S920	S921	S922	S923	S924	S925	S926	S927	S928	S929	S930	S931	S932	S933	S934	S935	S936	S937	S938	S939	S940	S941	S942	S943	S944	S945	S946	S947	S948	S949	S950	S951	S952	S953	S954	S955	S956	S957	S958	S959	S960	S961	S962	S963	S964	S965	S966	S967	S968	S969	S970	S971	S972	S973	S974	S975	S976	S977	S978	S979	S980	S981	S982	S983	S984	S985	S986	S987	S988	S989	S990	S991	S992	S993	S994	S995	S996	S997	S998	S999	S1000	S1001	S1002	S1003	S1004	S1005	S1006	S1007	S1008	S1009	S1010	S1011	S1012	S1013	S1014	S1015	S1016	S1017	S1018	S1019	S1020	S1021	S1022	S1023	S1024	S1025	S1026	S1027	S1028	S1029	S1030	S1031	S1032	S1033	S1034	S1035	S1036	S1037	S1038	S1039	S1040	S1041	S1042	S1043	S1044	S1045	S1046	S1047	S1048	S1049	S1050	S1051	S1052	S1053	S1054	S1055	S1056	S1057	S1058	S1059	S1060	S1061	S1062	S1063	S1064	S1065	S1066	S1067	S1068	S1069	S1070	S1071	S1072	S1073	S1074	S1075	S1076	S1077	S1078	S1079	S1080	S1081	S1082	S1083	S1084	S1085	S1086	S1087	S1088	S1089	S1090	S1091	S1092	S1093	S1094	S1095	S1096	S1097	S1098	S1099	S1100	S1101	S1102	S1103	S1104	S1105	S1106	S1107	S1108	S1109	S1110	S1111	S1112	S1113	S1114	S1115	S1116	S1117	S1118	S1119	S1120	S1121	S1122	S1123	S1124	S1125	S1126	S1127	S1128	S1129	S1130	S1131	S1132	S1133	S1134	S1135	S1136	S1137	S1138	S1139	S1140	S1141	S1142	S1143	S1144	S1145	S1146	S1147	S1148	S1149	S1150	S1151	S1152	S1153	S1154	S1155	S1156	S1157	S1158	S1159	S1160	S1161	S1162	S1163	S1164	S1165	S1166	S1167	S1168	S1169	S1170	S1171	S1172	S1173	S1174	S1175	S1176	S1177	S1178	S1179	S1180	S1181	S1182	S1183	S1184	S1185	S1186	S1187	S1188	S1189	S1190	S1191	S1192	S1193	S1194	S1195	S1196	S1197	S1198	S1199	S1200	S1201	S1202	S1203	S1204	S1205	S1206	S1207	S1208	S1209	S1210	S1211	S1212	S1213	S1214	S1215	S1216	S1217	S1218	S1219	S1220	S1221	S1222	S1223	S1224	S1225	S1226	S1227	S1228	S1229	S1230	S1231	S1232	S1233	S1234	S1235	S1236	S1237	S1238	S1239	S1240	S1241	S1242	S1243	S1244	S1245	S1246	S1247	S1248	S1249	S1250	S1251	S1252	S1253	S1254	S1255	S1256	S1257	S1258	S1259	S1260	S1261	S1262	S1263	S1264	S1265	S1266	S1267	S1268	S1269	S1270	S1271	S1272	S1273	S1274	S1275	S1276	S1277	S1278	S1279	S1280	S1281	S1282	S1283	S1284	S1285	S1286	S1287	S1288	S1289	S1290	S1291	S1292	S1293	S1294	S1295	S1296	S1297	S1298	S1299	S1300	S1301	S1302	S1303	S1304	S1305	S1306	S1307	S1308	S1309	S1310	S1311	S1312	S1313	S1314	S1315	S1316	S1317	S1318	S1319	S1320	S1321	S1322	S1323	S1324	S1325	S1326	S1327	S1328	S1329	S1330	S1331	S1332	S1333	S1334	S1335	S1336	S1337	S1338	S1339	S1340	S1341	S1342	S1343	S1344	S1345	S1346	S1347	S1348	S1349	S1350	S1351	S1352	S1353	S1354	S1355	S1356	S1357	S1358	S1359	S1360	S1361	S1362	S1363	S1364	S1365	S1366	S1367	S1368	S1369	S1370	S1371	S1372	S1373	S1374	S1375	S1376	S1377	S1378	S1379	S1380	S1381	S1382	S1383	S1384	S1385	S1386	S1387	S1388	S1389	S1390	S1391	S1392	S1393	S1394	S1395	S1396	S1397	S1398	S1399	S1400	S1401	S1402	S1403	S1404	S1405	S1406	S1407	S1408	S1409	S1410	S1411	S1412	S1413	S1414	S1415	S1416	S1417	S1418	S1419	S1420	S1421	S1422	S1423	S1424	S1425	S1426	S1427	S1428	S1429	S1430	S1431	S1432	S1433	S1434	S1435	S1436	S1437	S1438	S1439	S1440	S1441	S1442	S1443	S1444	S1445	S1446	S1447	S1448	S1449	S1450	S1451	S1452	S1453	S1454	S1455	S1456	S1457	S1458	S1459	S1460	S1461	S1462	S1463	S1464	S1465	S1466	S1467	S1468	S1469	S1470	S1471	S1472	S1473	S1474	S147
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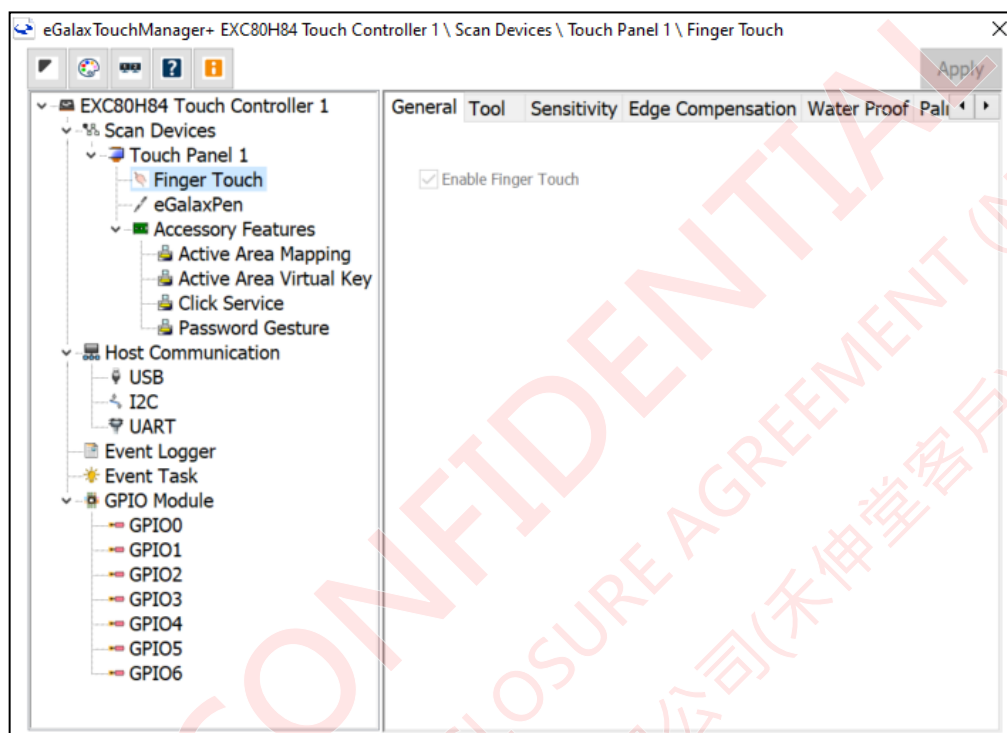
5.2.E. Touch Panel \ Misc.



Operation Mode	
Pen First	Pen input is the priority. Finger input will be disabled if pen is detected.
Finger and Pen Simultaneously	Finger input and pen input will be detected and reported simultaneously.
Finger and Pen Exclusively	Whichever is detected by the controller first will be the primary input. The other input will be disabled until the original input is lifted-off.

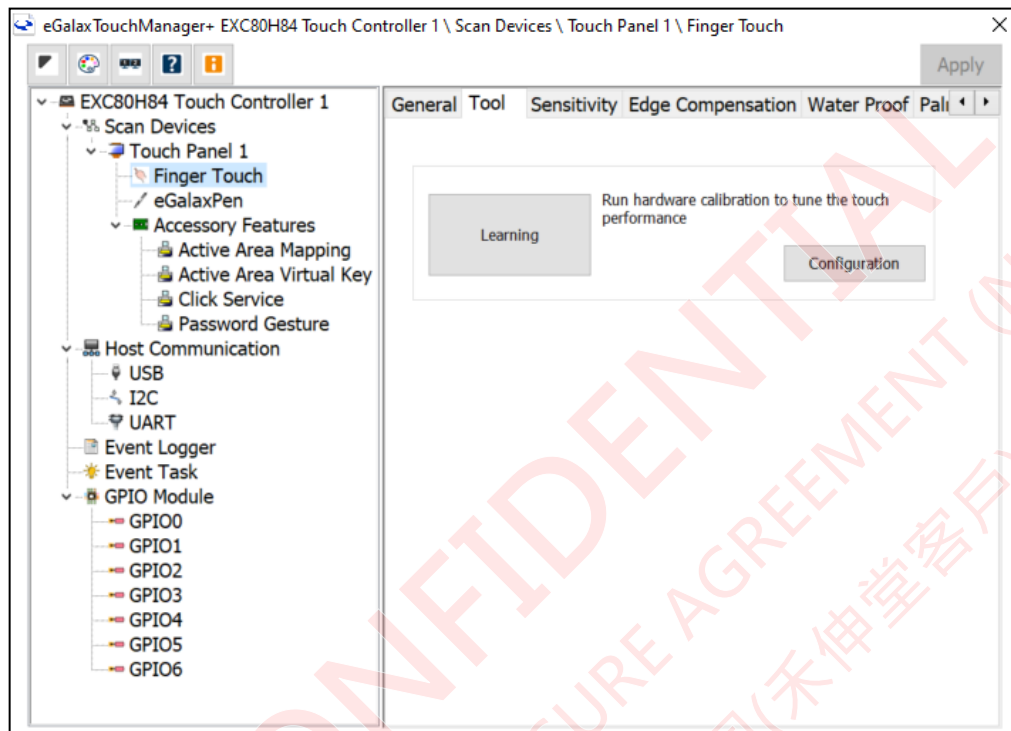
5.3. Scan Devices \ Touch Panel \ Finger Touch

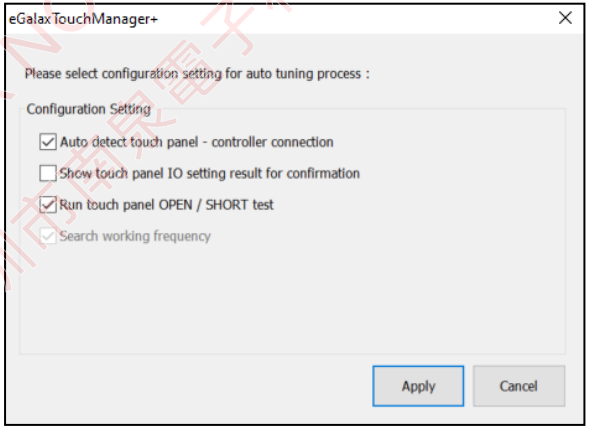
5.3.A. Finger Touch \ General



General	
Enable Finger Touch	Enable Finger Touch function.

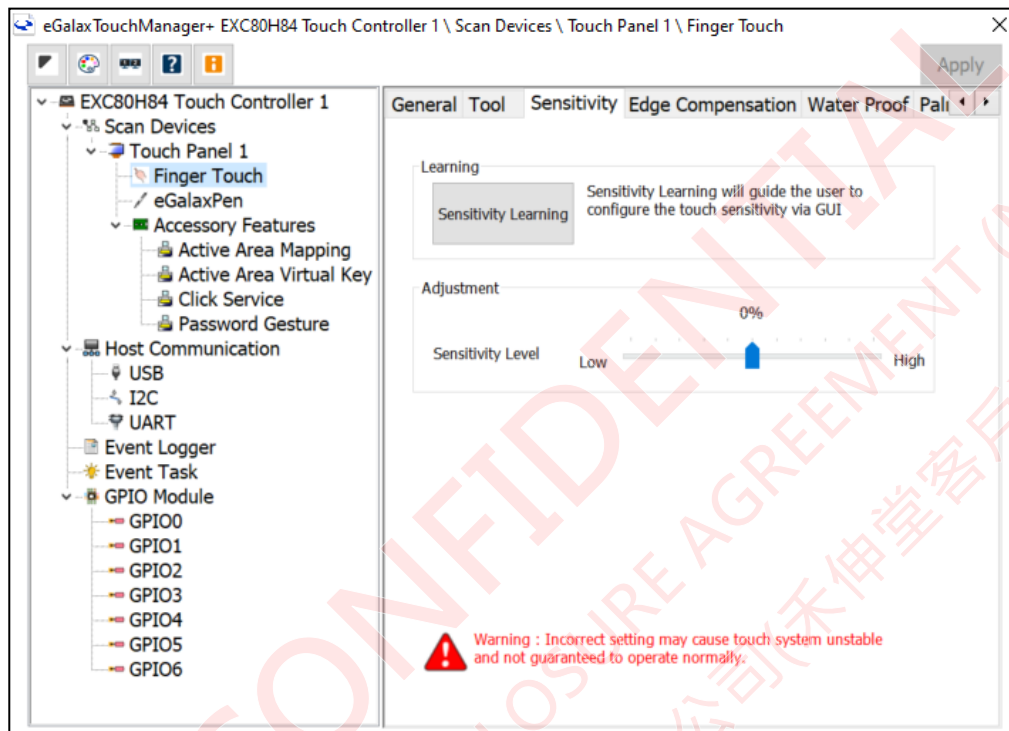
5.3.B. Finger Touch \ Tool



Tool	
Learning	Start a learning process that will guide user to tune hardware and sensitivity configurations of Finger Touch .
Configuration	<p>Manually configure the learning flow if needed.</p>  <ol style="list-style-type: none"> 1. Automatically detect the channel connections of the controller. 2. Show a confirmation window of channel detection result. 3. Test if there is any open or short channel. 4. Automatically search the suggested working frequencies that fit your touch module.

5.3.C. Finger Touch \ Sensitivity

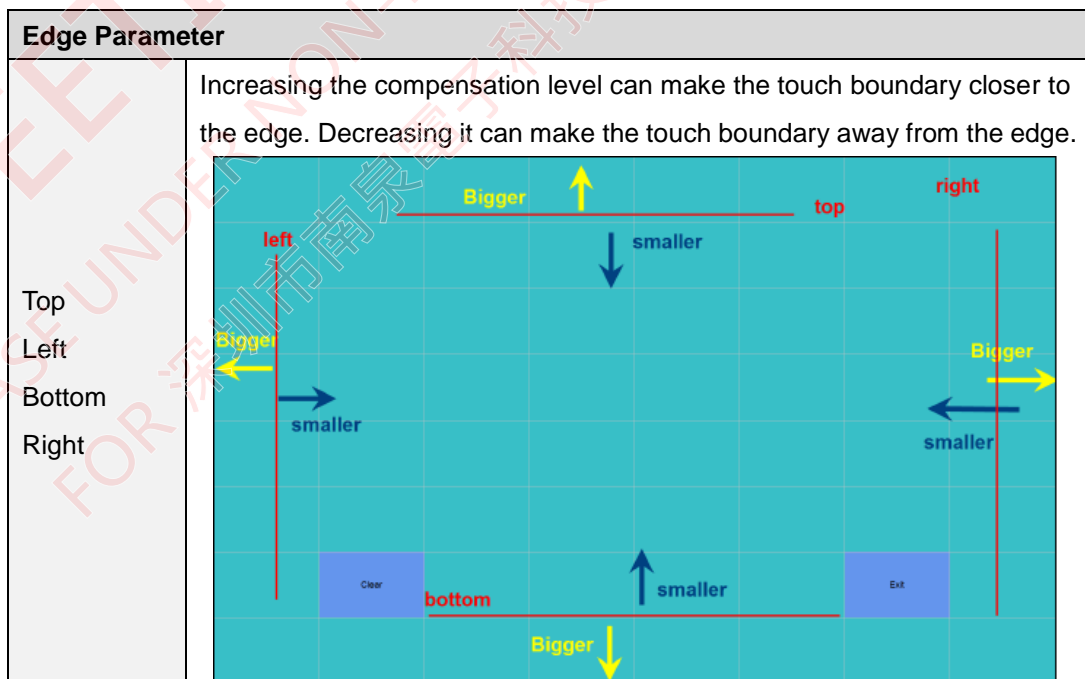
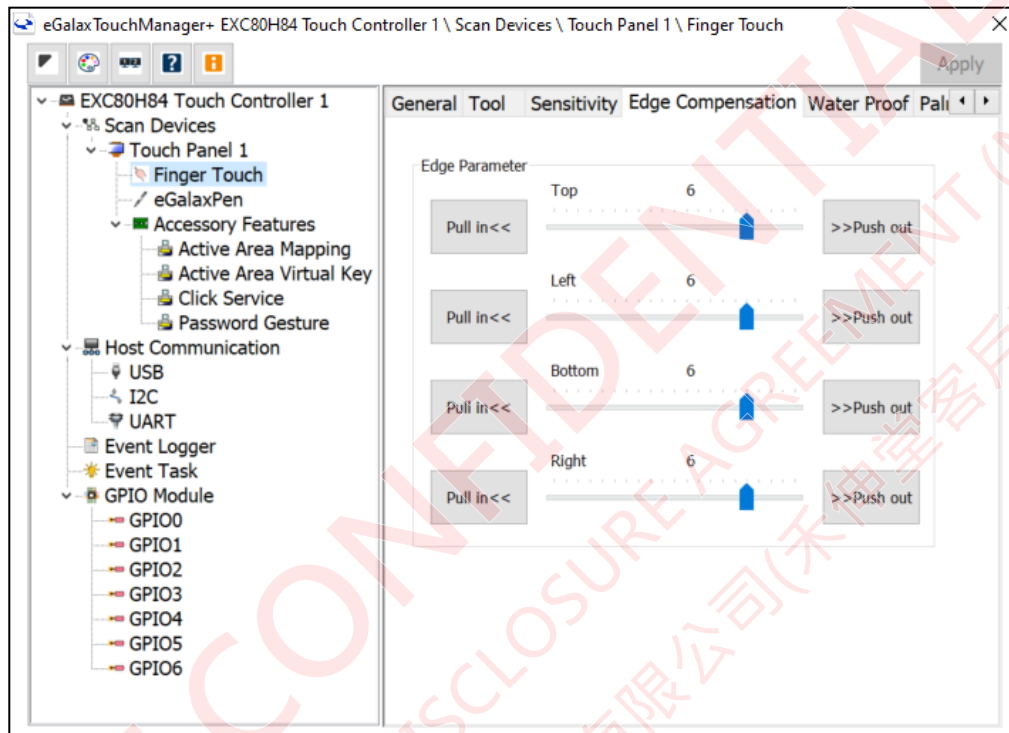
After “**Sensitivity Learning**” is completed, the touch sensitivity is set to the best level for touch system. User can restart the sensitivity learning process or adjust sensitivity here.



Learning	
Sensitivity Learning	Start a learning process that will guide user to tune the sensitivity based on current hardware configuration.
Adjustment	
Sensitivity Level	Do sensitivity adjustment based on the current sensitivity settings. It can increase up to 50% of the base or decrease it down to -50% of the base.

5.3.D. Finger Touch \ Edge Compensation

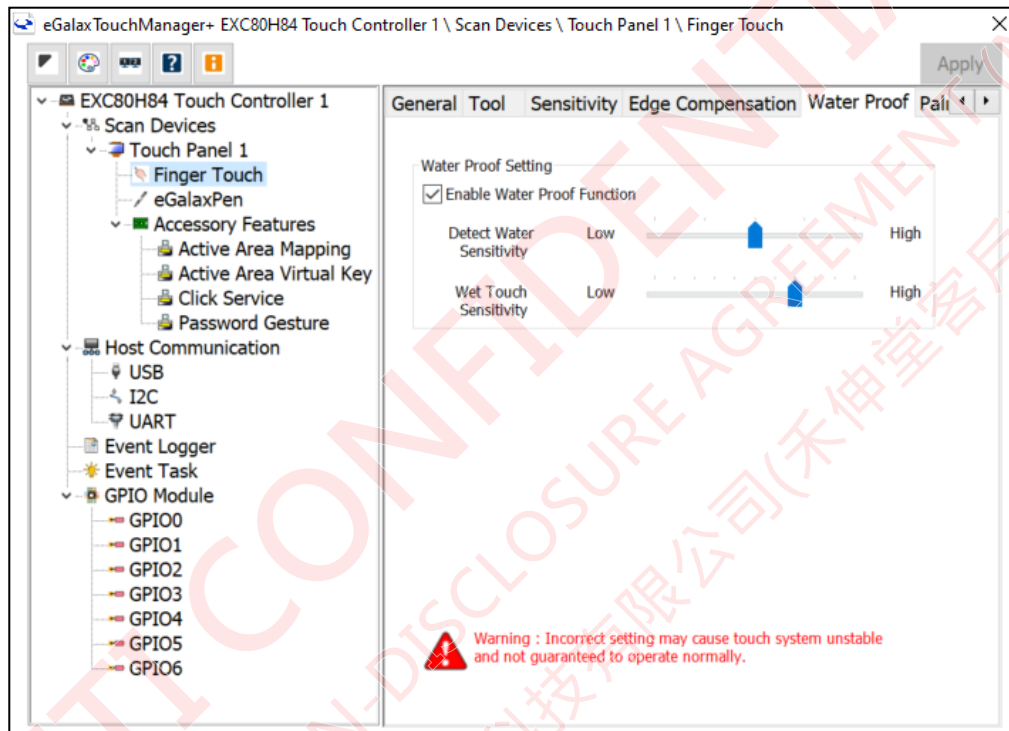
Due to the touch sensor design or the assembly offset, the accuracy on the edge side may not be as good as that of the center area. The edge compensation settings can improve the edge accuracy.



5.3.E. Finger Touch \ Waterproof

Water can affect PCAP signal quality, causing abnormal touch behavior. EETI Orion touch solution, with built-in waterproof ability, can detect water on the touch panel, adjust the input sensitivity and then reduce the impact of water interference.

In this page user can enable/disable the **waterproof** function, adjust the sensitivity of water detection and adjust the touch sensitivity when water is detected.

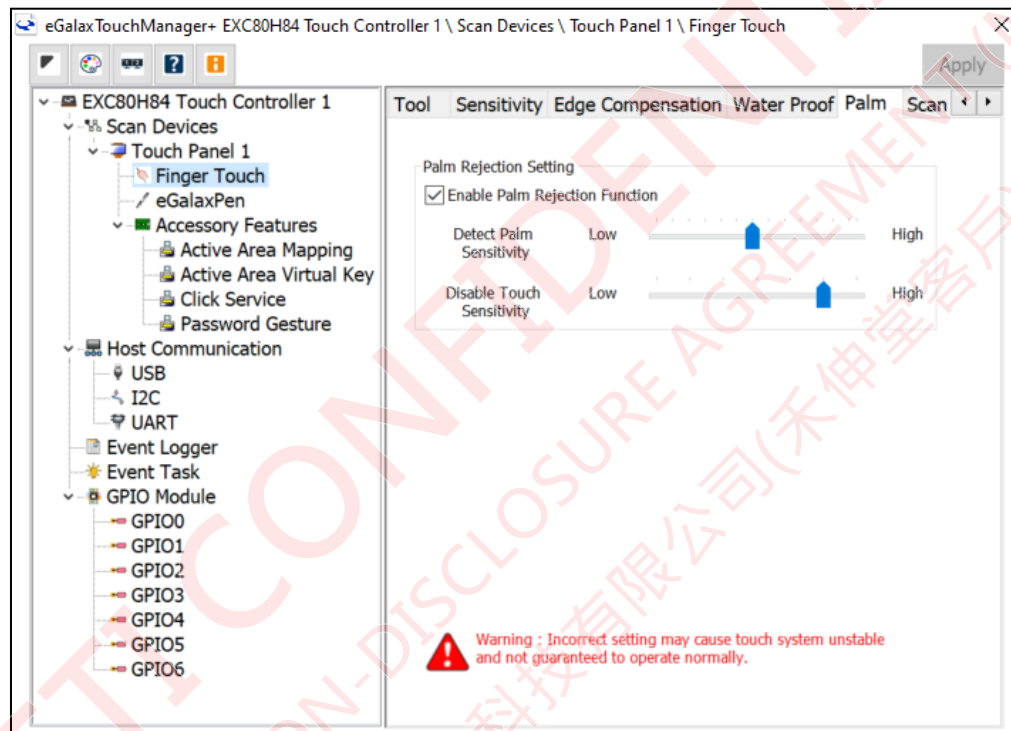


Water Proof Setting	
Enable Water Proof Function	Enable/Disable water proof function.
Detect Water Sensitivity	Adjust the sensitivity of water detection.
Wet Touch Sensitivity	Adjust the touch sensitivity when water is detected.

5.3.F. Finger Touch \ Palm

In this page user can enable/disable Palm Rejection function and adjust its sensitivities. A large area of palm contact with the touch screen surface will generate enough capacitance variation, letting the touch points to be reported.

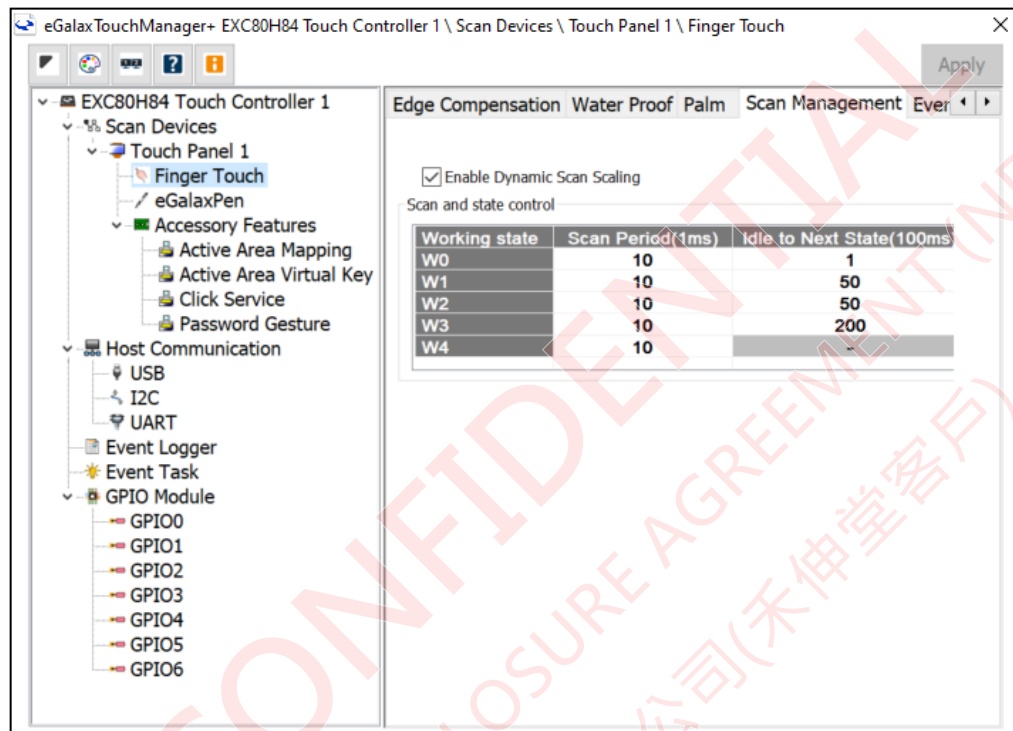
However, users may expect to see touch points only when their finger touches the screen. The EETI Orion controller can differentiate finger signals from palm signals by detecting different sizes of contact areas accurately.



Palm Rejection Setting	
Enable	Enable/Disable palm rejection function.
Detect Palm Sensitivity	Adjust the sensitivity for palm detection.
Disable Touch Sensitivity	The sensitivity for blocking an extra suspicious palm input when palm rejection is triggered. The higher the sensitivity is, the more likely a touch input with large area will be blocked.

5.3.G. Finger Touch \ Scan Management

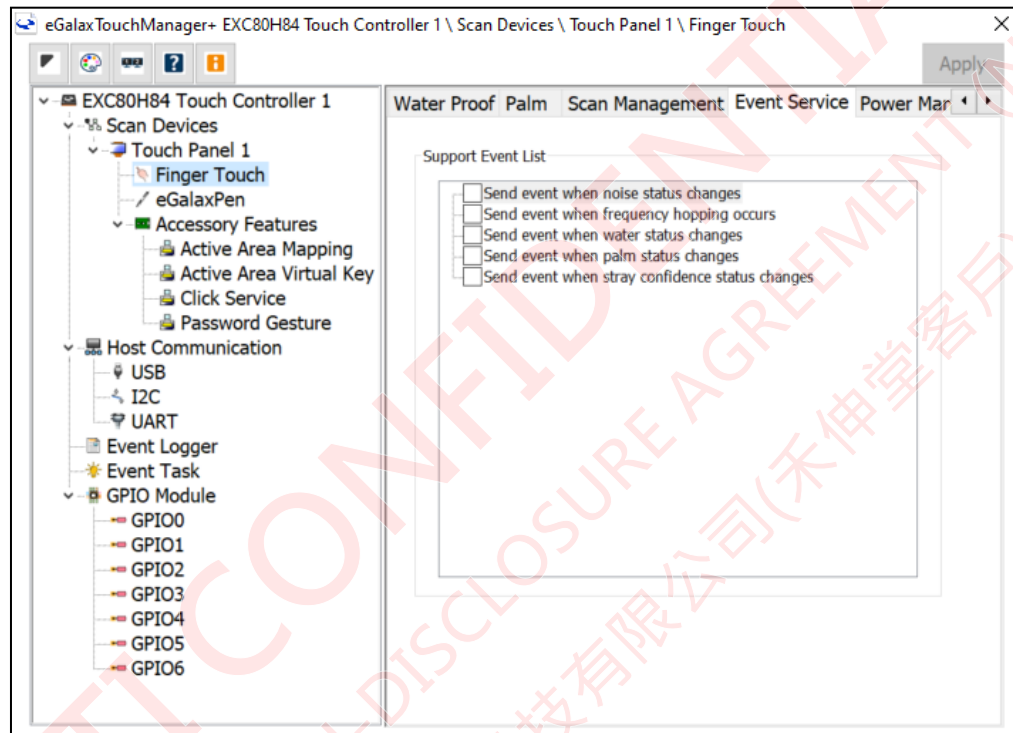
In this page, user can configure the **Scan Period** time and **Idle to Next State** time in each working state for **Finger Touch**. (Reference: [Scan Devices](#))



Scan Management	
Enable Dynamic Scan Scaling	Enable Dynamic Scan Scaling function. The scanning cycle can be automatically adjusted according to the idle state time to reduce the power consumption.
Scan and state control	
Working State	From W0~W4.
Scan Period (ms)	Do scan measurement every Scan Period (ms).
Idle to Next State (100ms)	The duration (ms) of an idle device moves to next Working State .

5.3.H. Finger Touch \ Event Service

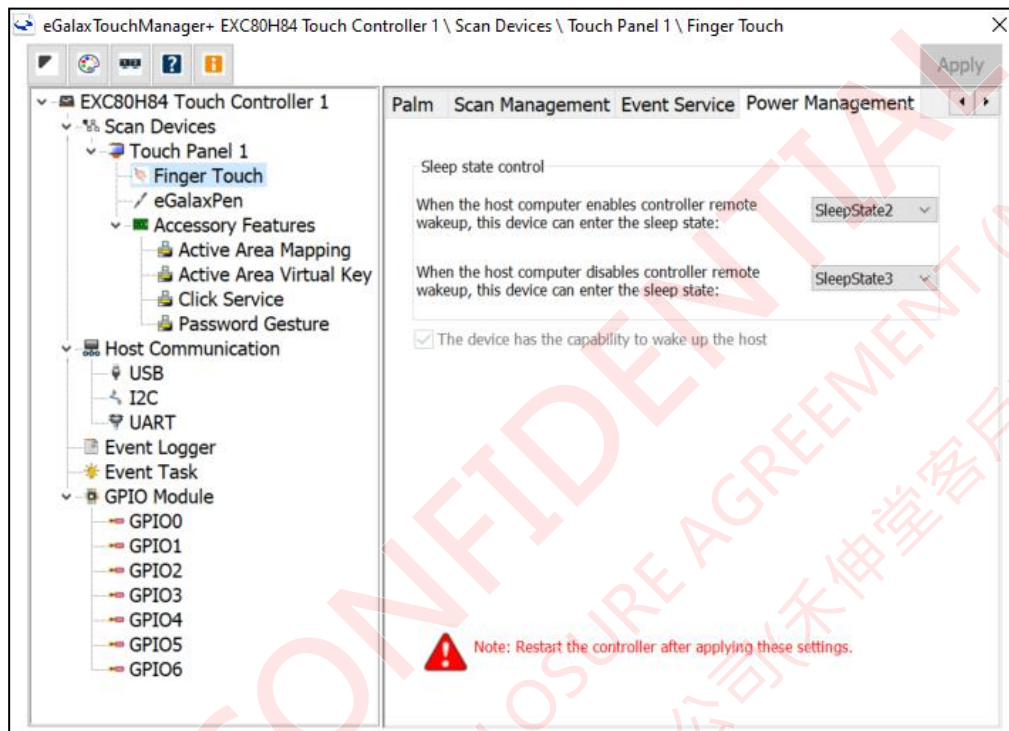
The **Event Service** provides touch device with the ability to report the selected events to the controller. E.g. Palm or water is detected, or working frequency is changed...etc. These events will be captured by the **Event Logger** and sent to the host. With TM+ the **eGalaxTouchMon** will receive these events and log them into the Windows event viewer. The 3rd party application can also capture these events by integrating EETI HID API.



Support Event List	
Noise status transition	Notify the controller when entering or leaving noise condition.
Frequency hopping	Notify the controller when frequency hopping occurs.
Water status transition	Notify the controller when entering or leaving water condition.
Palm status transition	Notify the controller when entering or leaving palm condition.
Stray status transition	Notify the controller when entering or leaving baseline confidence low condition.

5.3.I. Finger Touch \ Power Management

User can select the preferred **SleepState** in accordance with Host's remote wakeup setting.

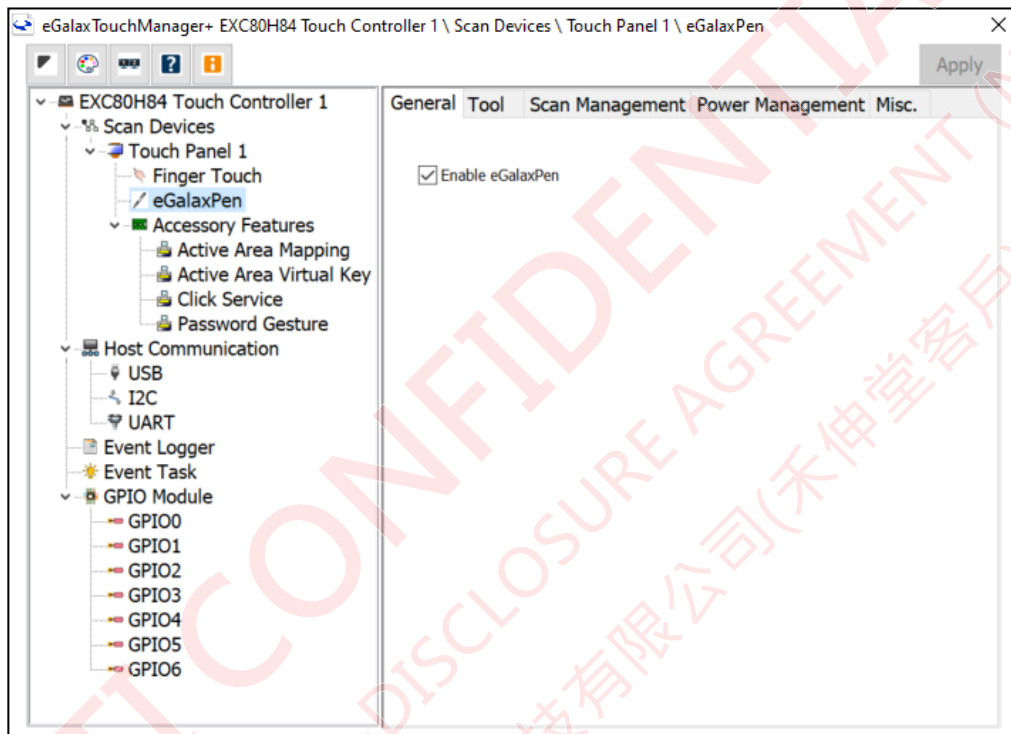


Sleep State Control	
Host allows device to do remote wakeup	Select from SleepState 1 ~ 3.
Host disallows device to do remote wakeup	Select from SleepState 1 ~ 3.
Capability to remote wakeup the host	Empower the device to remotely wake up the host.
Note	<u>Restart the controller</u> after applying these settings.

5.4. Scan Devices \ Touch Panel \ eGalaxPen

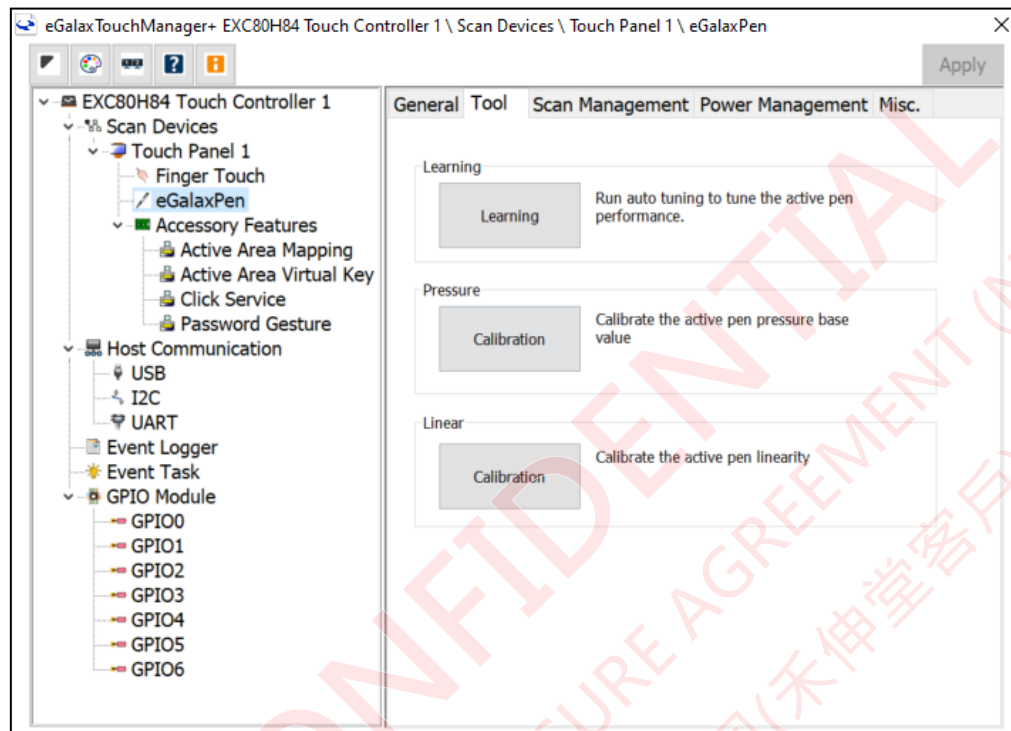
If the controller supports eGalaxPen, the **eGalaxPen** node will be shown here. Below pages are the hardware and software settings for eGalaxPen.

5.4.A. eGalaxPen \ General



General	
Enable eGalaxPen	Enable/Disable eGalaxPen function.
Note	Restart the controller after applying these settings.

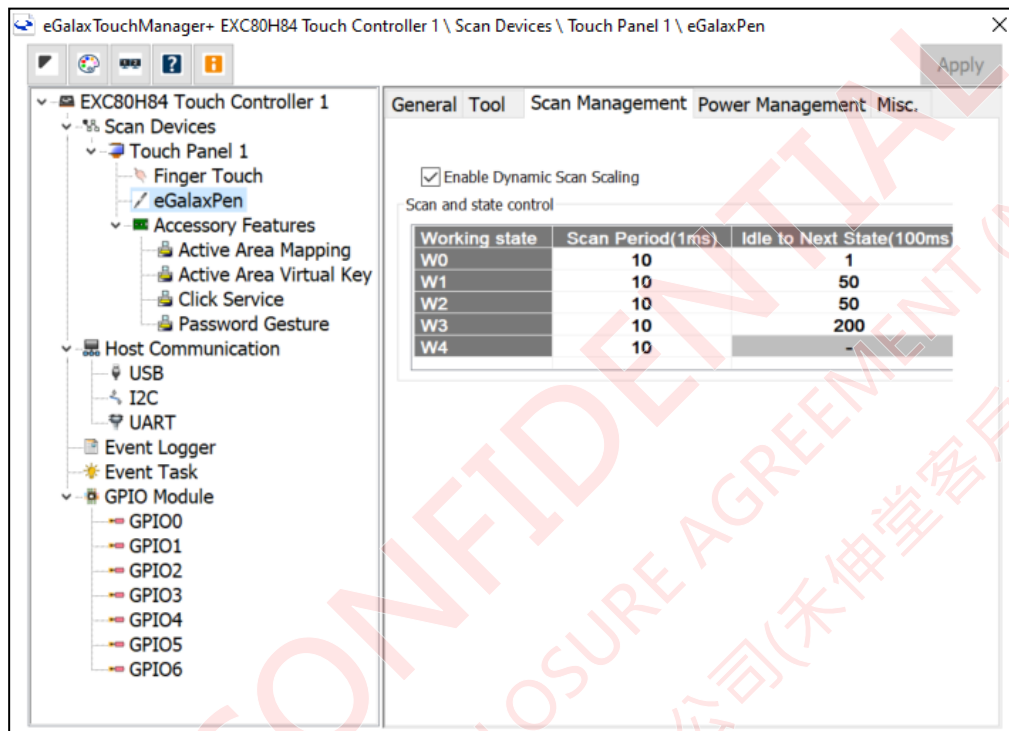
5.4.B. eGalaxPen \ Tool



Tool	
Learning	Start a signal learning process that guides user to tune both hardware and sensitivity settings of eGalaxPen .
Pressure Calibration	Start a pressure calibration process that guides user to tune the pressure base of eGalaxPen .
Linear Calibration	Start a linear calibration process that guides user to tune the linearity of eGalaxPen .

5.4.C. eGalaxPen \ Scan Management

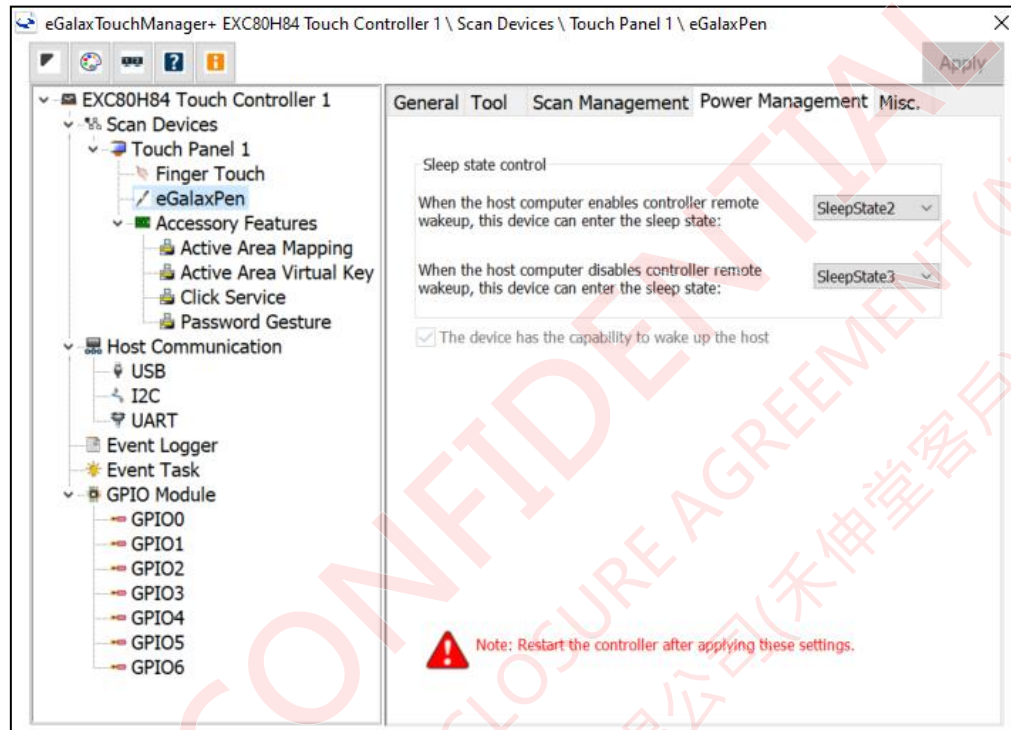
In this page, user can configure the **Scan Period** time and **Idle to Next State** time in each working state for **eGalaxPen**. (Reference: [Scan Devices](#))



Scan Management	
Enable Dynamic Scan Scaling	Enable Dynamic Scan Scaling function. The scanning cycle can be automatically adjusted according to the idle state time to reduce the power consumption.
Scan and State Control	
Working State	From W0~W4.
Scan Period (ms)	The Scan Period of every scan measurement. (ms)
Idle to Next State (100ms)	The duration (ms) of an idle device moves to next Working State .

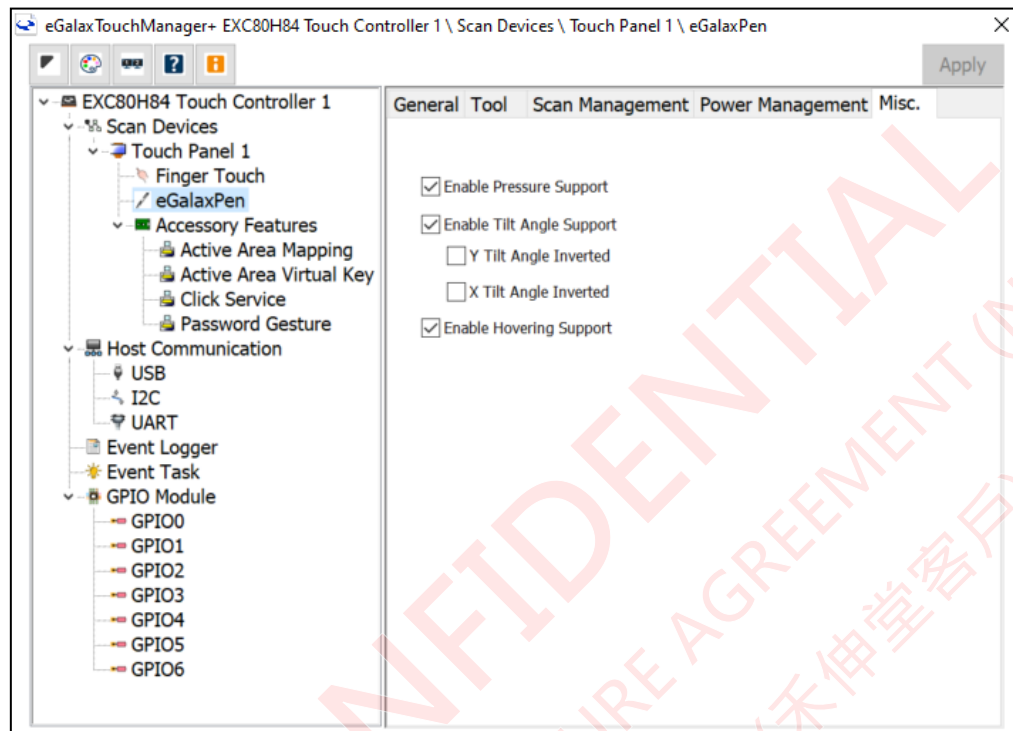
5.4.D. eGalaxPen \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting.



Sleep State Control	
Host allows device to do remote wakeup	Select from SleepState 1 ~ 3.
Host disallows device to do remote wakeup	Select from SleepState 1 ~ 3.
Capability to remote wakeup the host	Empower the device to remotely wake up the host.
Note	Restart the controller after applying these settings.

5.4.E. eGalaxPen \ Misc.

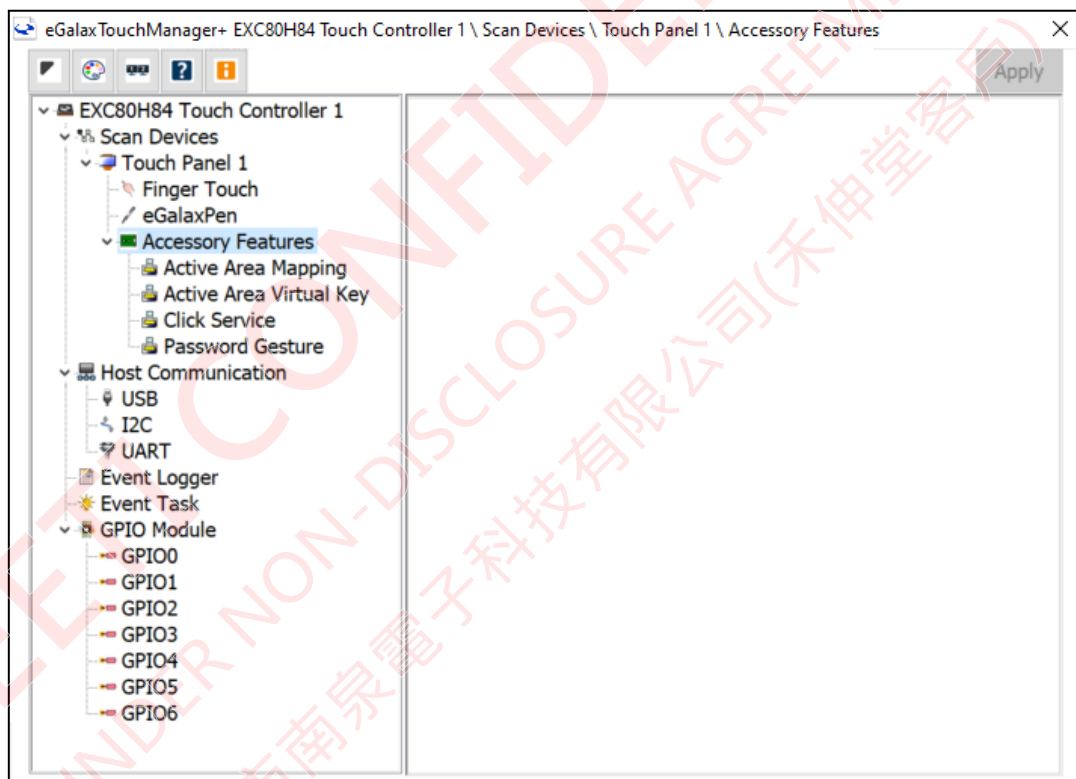


Misc.	
Enable Pressure	Enable/Disable pressure detection of eGalaxPen .
Enable Tilt	Enable/Disable tilt angle detection of eGalaxPen .
Y Tilt Angle Inverted	Reverse Y tilting angle
X Tilt Angle Inverted	Reverse X tilting angle
Enable Hovering	Enable/Disable hover detection of eGalaxPen .

5.5. Scan Devices \ Touch Panel \ Accessory Features

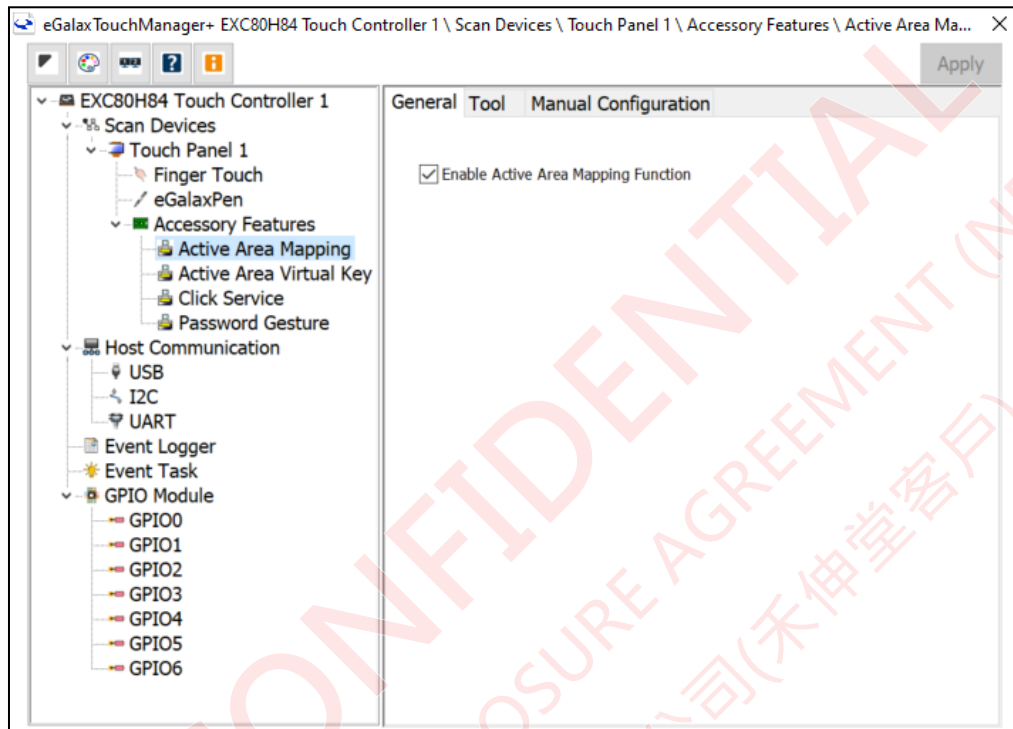
The **Accessory Features** is a category for the customized functions or special services:

- **Active Area Mapping:** User can redefine the working area of touch sensor or redefine the touch resolution of a working area.
- **Active Area Virtual Key:** User can define any sub area as software key button.
- **Click Service:** User can modify the touch behavior to click only or enhance double click performance.
- **Password Gesture:** User can enable the mode of password gesture for triggering special event by key in password with a virtual number keypad.



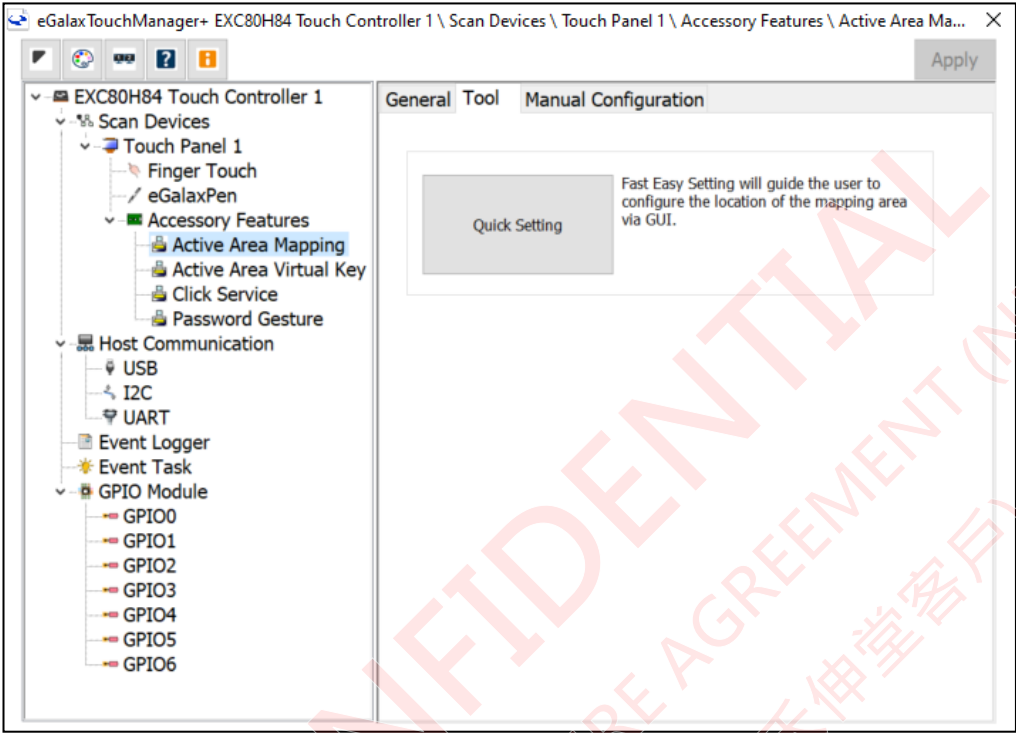
5.5.A. Accessory Features \ Active Area Mapping

i. Active Area Mapping \ General



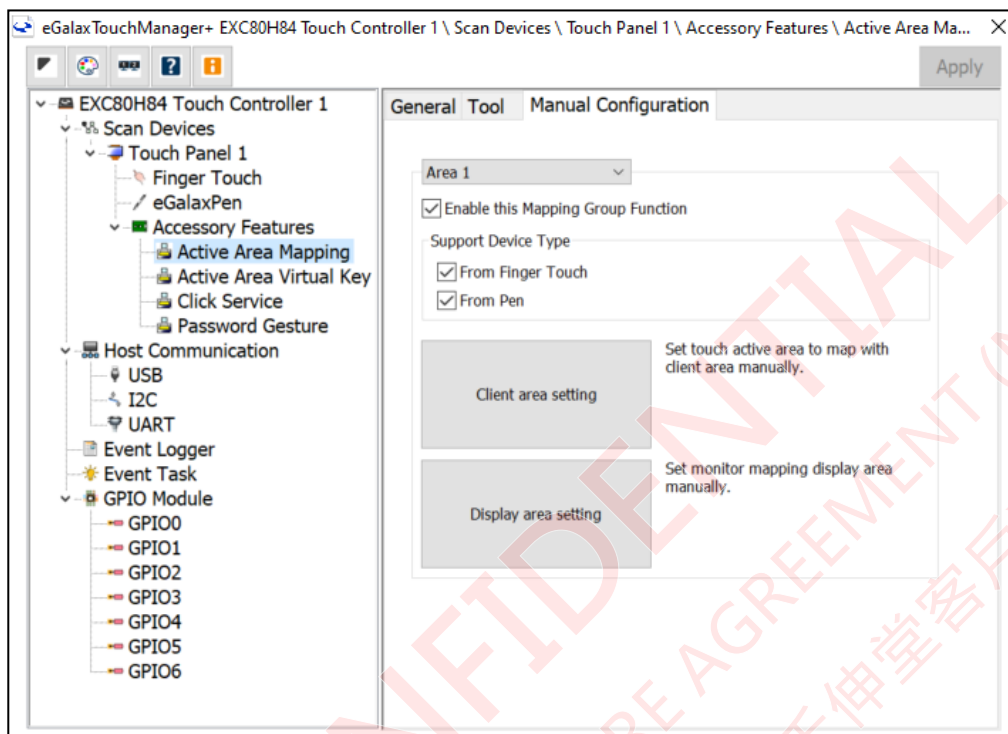
General	
Enable Active Area Mapping Function	Enable/Disable Active Area Mapping function.

ii. Active Area Mapping \ Tool



Tool	
Quick Setting	Start a quick setting process that will guide user to configure the working area.

iii. Active Area Mapping \ Manual Configuration

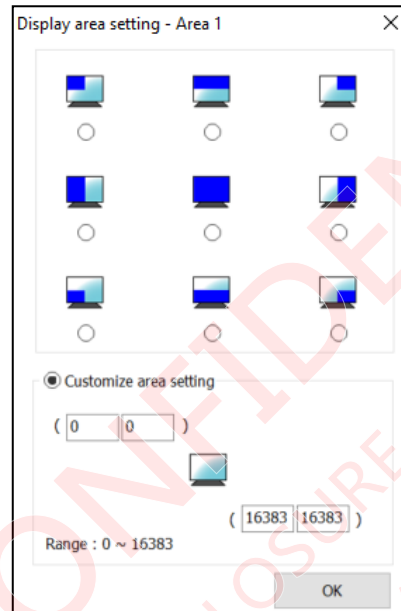


Manual Configuration	
Area List	Select the working area for below configuration.
Enable this Mapping Group Function	Enable/Disable this working area.
Support Device Type	
From Multi-touch	Make the working area able to receive Finger Touch input.
From Pen	Make the working area able to receive eGalaxPen input.
Client Area Setting	The four-corner positions of this working area.

Display Area Setting

The report resolution mapping to the working area.

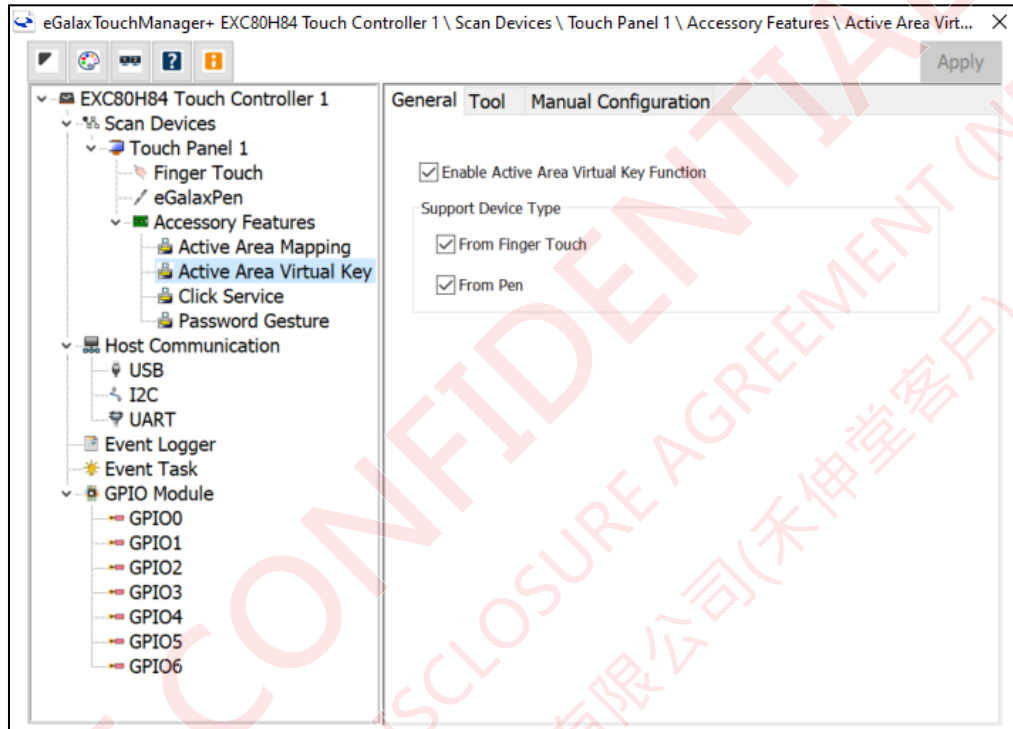
When the upper left option is selected, the report resolution will be mapped to the upper left area. If the following area options cannot satisfy your needs, you can also customize the area range by adjusting the upper left (X, Y) and the bottom right (X, Y) points.
(Range: 0~16383)



5.5.B. Accessory Features \ Active Area Virtual Key

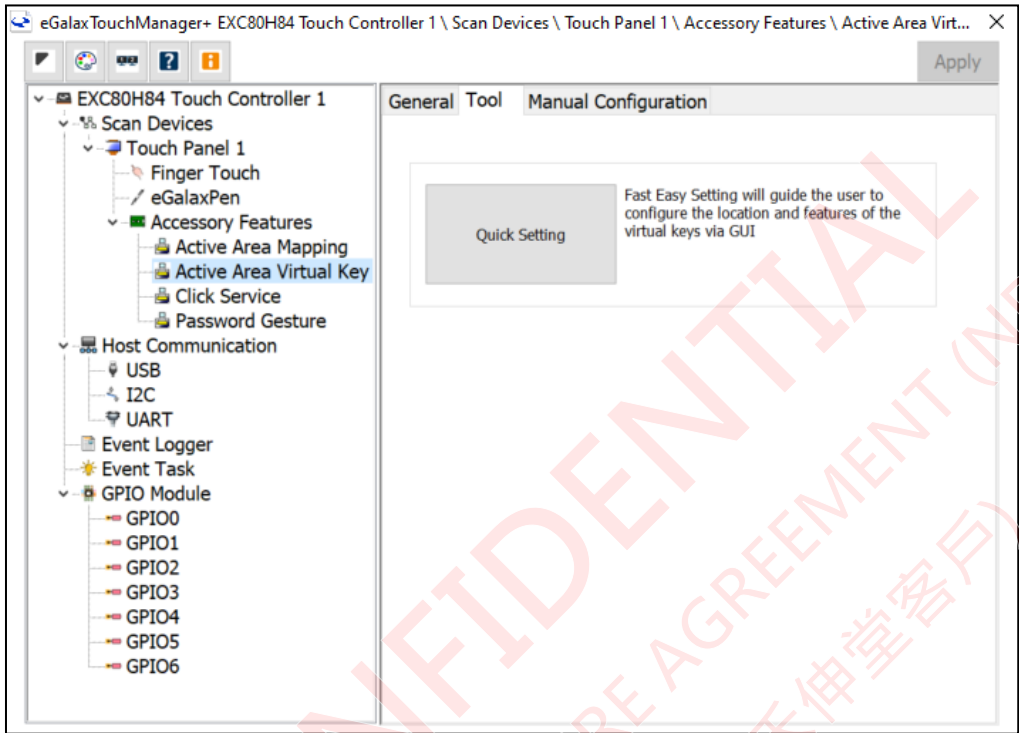
User can create sub areas to represent software key buttons. EETI Orion firmware kernel supports up to 96 virtual keys. Each virtual key can be named with any four characters.

i. Active Area Virtual Key \ General



General	
Enable Active Area Virtual Key Function	Enabl/Disable Active Area Virtual Key function.
Support Device Type	
From Finger Touch	Make the virtual key area receive Finger Touch input.
From Pen	Make the virtual key area receive eGalaxPen input.

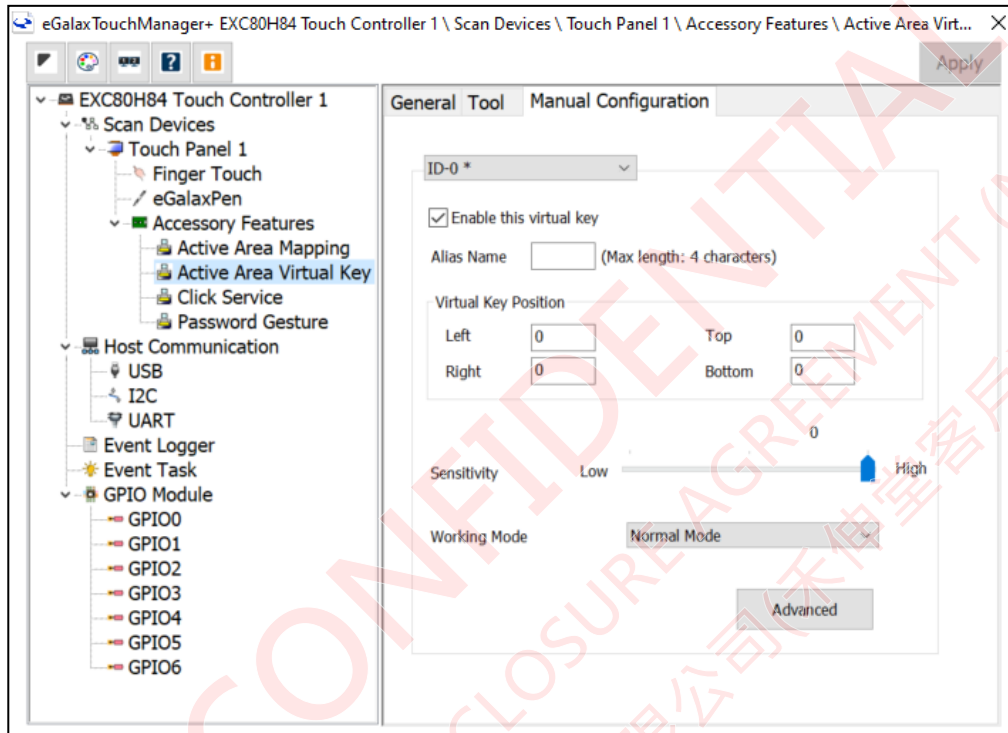
ii. Active Area Virtual Key \ Tool



Tool	
Quick Setting	Start a quick setting process that will guide user to configure virtual key locations and features.

iii. Active Area Virtual Key \ Manual Configuration

User can define each virtual key's dimension and location by entering its left, right, top, and bottom boundaries. User can also configure the sensitivity level of each virtual key individually and select the desirable touch mode: normal, click on touch, or click on release.

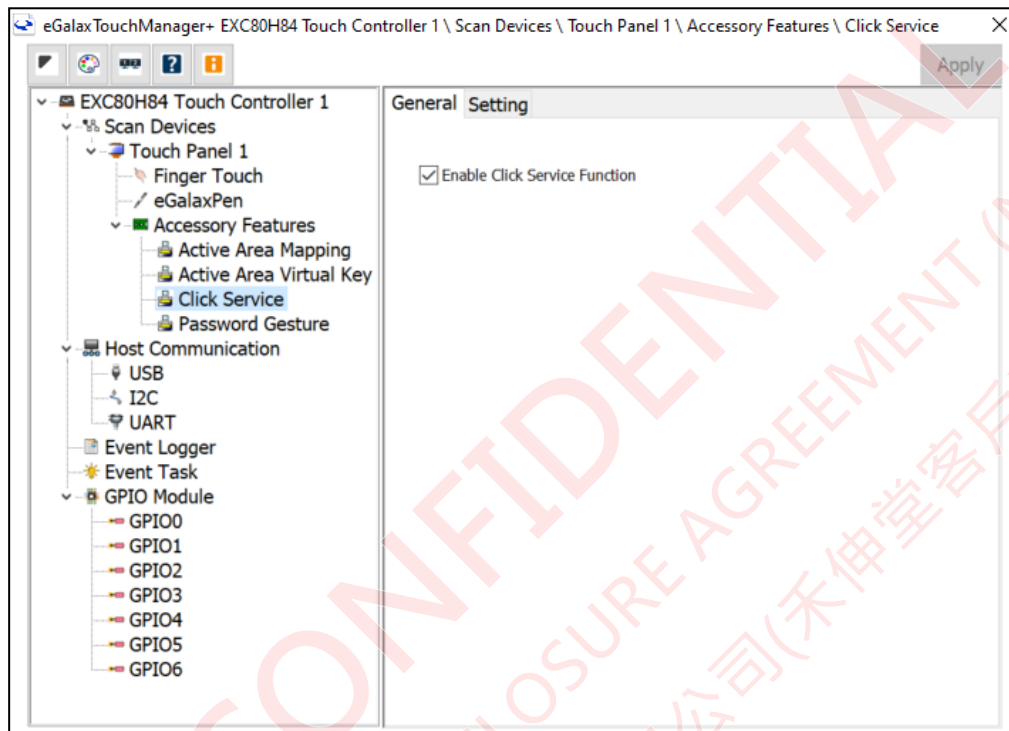


Active Area Virtual Key Manual Configuration	
ID List	Select Virtual Key ID from 0~95. (The actual number of virtual keys is dependent on the controller module.)
Enable	Enable/Disable this Virtual Key.
Alias Name	Name the virtual key. (Max 4 characters)
Virtual Key Position	
Left / Right / Top / Bottom	The boundaries of the virtual key area.
Sensitivity	The touch sensitivity of the virtual key.
Working Mode	<p>There are three working mode settings for virtual key area:</p> <p>Normal: Keep registering Down events when finger is pressing and register an Up event after finger lifts off.</p> <p>Click on Touch: Register touch event only at the time of touch down.</p> <p>Click on Release: Register touch event only at the time of touch lift-off.</p>

Advanced	
<div><div>Advanced</div><div><div>Advanced</div><div><div>Report Format</div><div>Button Event</div><div><input checked="" type="checkbox"/> Enable this report</div><div><input type="checkbox"/> Report Continuous Down</div><div>HID Keyboard Event</div><div><input type="checkbox"/> Enable this report</div><div>Key Code <div></div></div><div>Keyboard Left Side</div><div><input type="checkbox"/> Ctrl <input type="checkbox"/> Alt <input type="checkbox"/> Shift <input type="checkbox"/> Win</div><div>Keyboard Right Side</div><div><input type="checkbox"/> Ctrl <input type="checkbox"/> Alt <input type="checkbox"/> Shift <input type="checkbox"/> Win</div><div>Grouping</div><div><input type="checkbox"/> Enable group function</div><div><input type="checkbox"/> Group Head</div><div>Merge with <div>None</div></div><div>OK</div></div></div></div>	<p>The advanced configuration of the selected key.</p> <p>User can select the AA-Key report format* and enable grouping function.</p> <p>*If user wants to set the AA-key to report HID key code, please contact EETI for customized FW.</p> <p>Report Format:</p> <ul style="list-style-type: none">• Button Event EETI virtual key report format.• HID Keyboard Event HID keyboard report format, there are various key codes and combinations that can be selected. <p>Grouping:</p> <ul style="list-style-type: none">• Enable different keys to be the same detecting group that can create a non-rectangular, special shape key area.

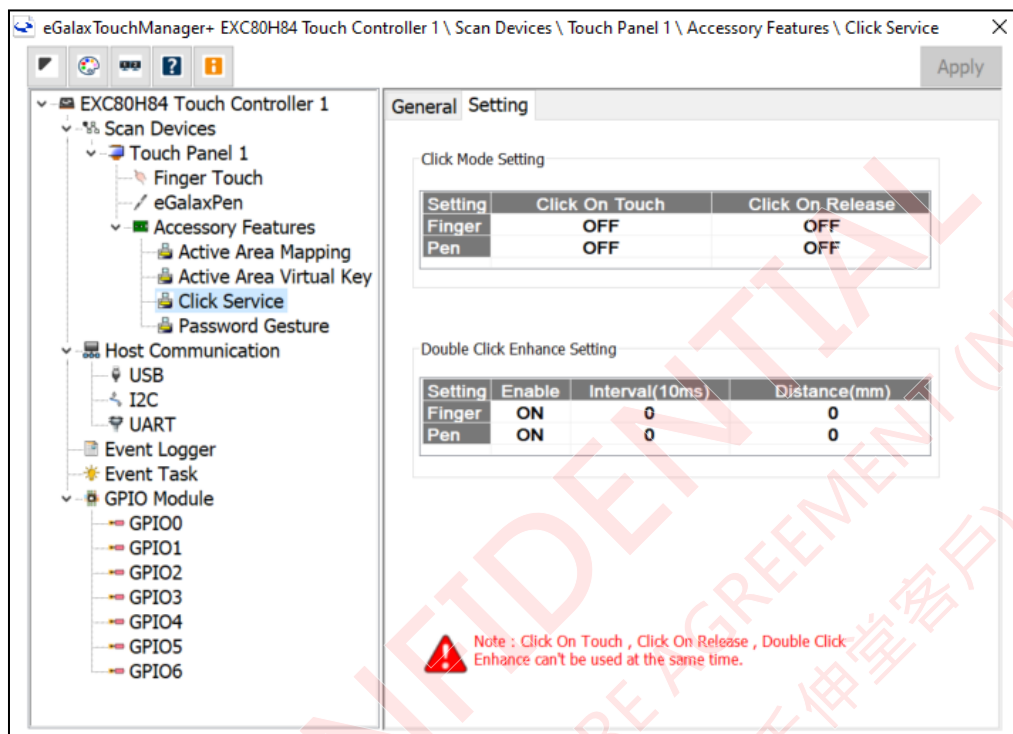
5.5.C. Accessory Features \ Click Service

i. Click Service \ General



General	
Enable Click Service Function	Enable/Disable Click Service function.

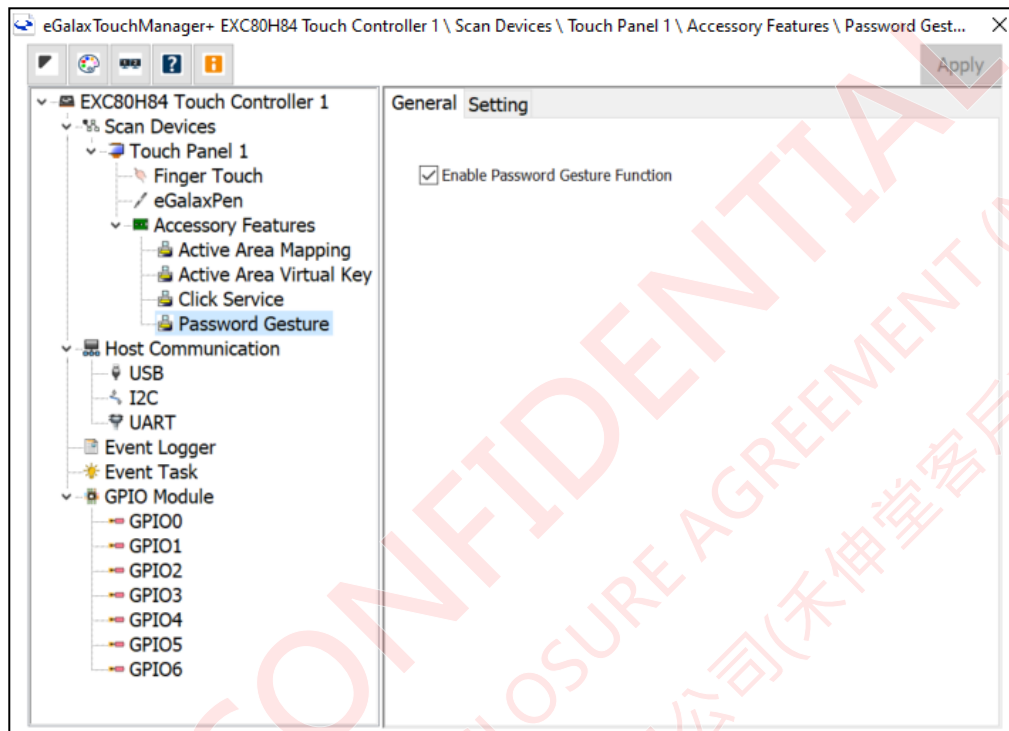
ii. Click Service \ Setting



Click Mode Setting	
Click On Touch	At the time of finger touch down, report the Touch down and Lift off event as a click operation.
Click On Release	At the time of finger lift off, report the Touch down and Lift off event as a click operation.
Double Click Enhance Setting	
Enable	Enable/Disable double click enhancement.
Interval(10ms)	The duration between two clicks.
Distance(mm)	The distance between two clicks.
Note	Click On Touch, Click On Release, Double Click Enhance can't be used at the same time.

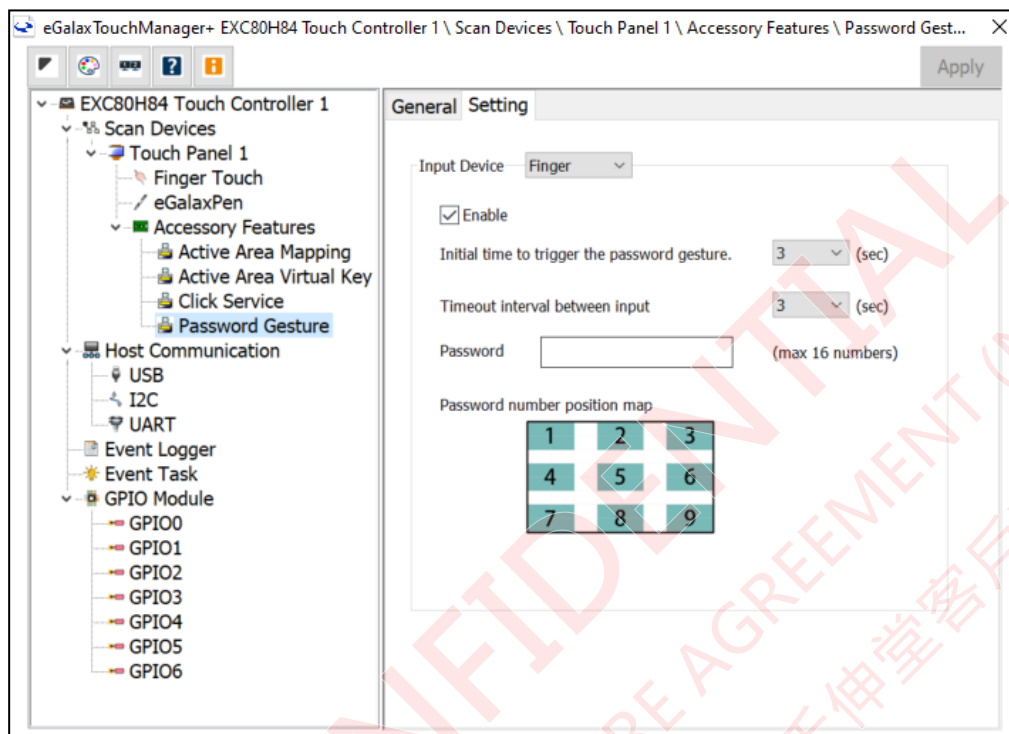
5.5.D. Accessory Features \ Password Gesture

i. Password gesture \ General



General	
Enable Password Gesture Function	Enable/Disable Password Gesture function. Password Gesture can turn touch panel into an invisible keypad that allows user to type in the password to trigger a certain action. Please also refer to Event Task to set up the action.

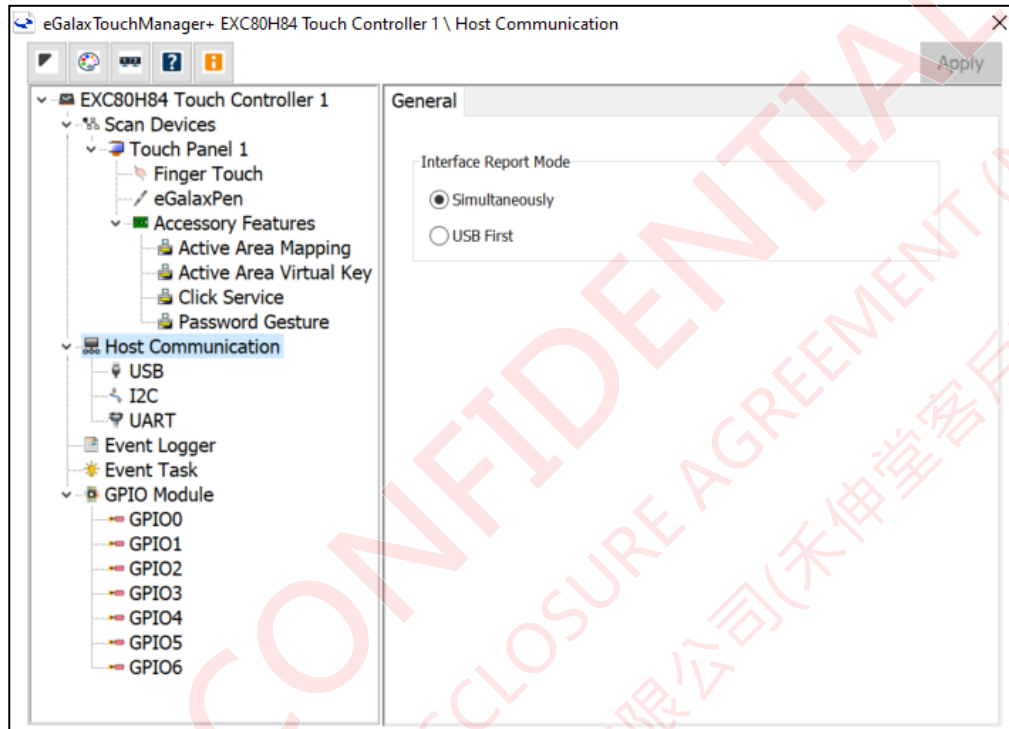
ii. Password Gesture \ Setting



Setting	
Input device	Select password settings for Finger or Pen
Enable	Enable this input device
Initial time to trigger the password gesture	Keep touching down on the touch screen for this period to initialize the keypad.
Timeout interval between input	The inter-digit timeout of the password input. The password keypad will exit if the password did not enter within a certain time.
Password	Set password (maximum : 16 numbers)

6. Host Communication

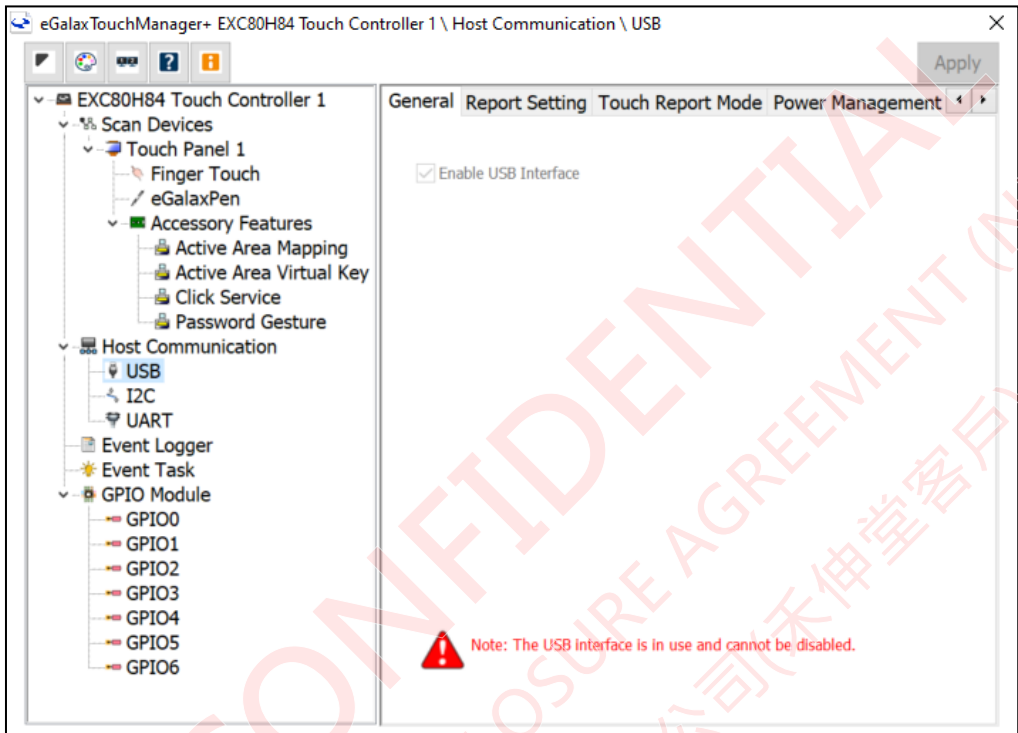
Orion touch controller supports multiple interfaces: USB, I2C, and UART. User can define the number of touches and pens for each enabled interface. Each interface has its own power management policy.



Interface Report Mode	
Simultaneously	The touch controller can transfer data over USB, I2C, and UART interfaces at the same time.
USB First	The touch controller transfer data only over USB even when other interfaces are connected.

6.1. Host Communication \ USB

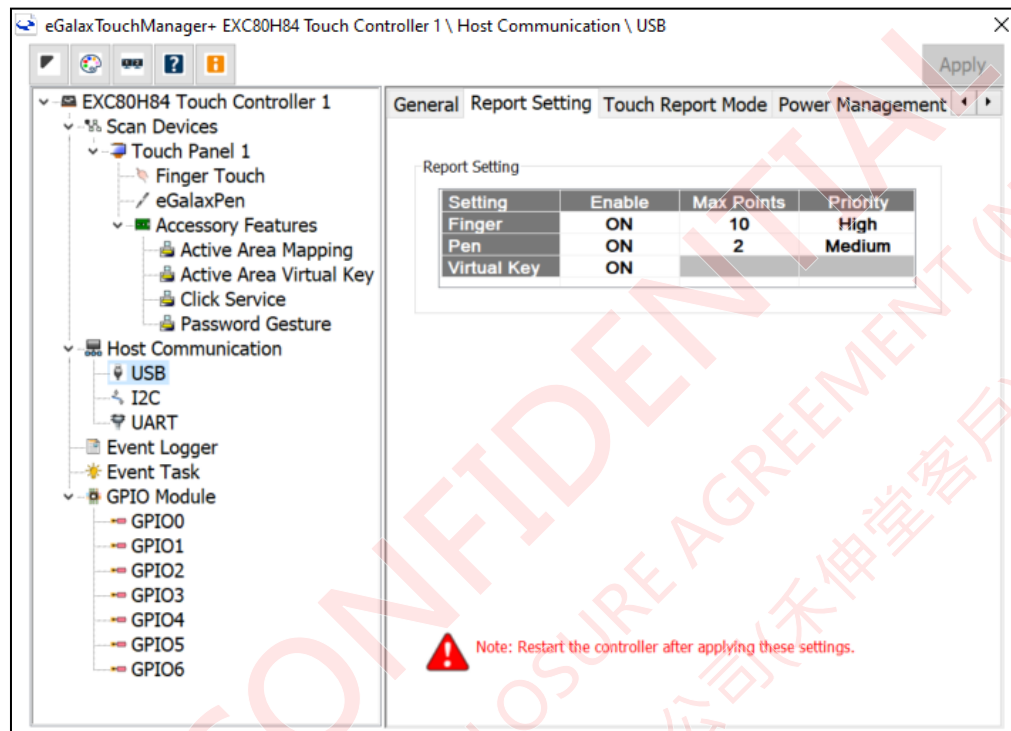
6.1.A. USB \ General






General	
Enable USB Interface	Enable/Disable USB function. A communication interface cannot be disabled if it is in use.
Note	Restart the controller after applying these settings.

6.1.B. USB \ Report Setting

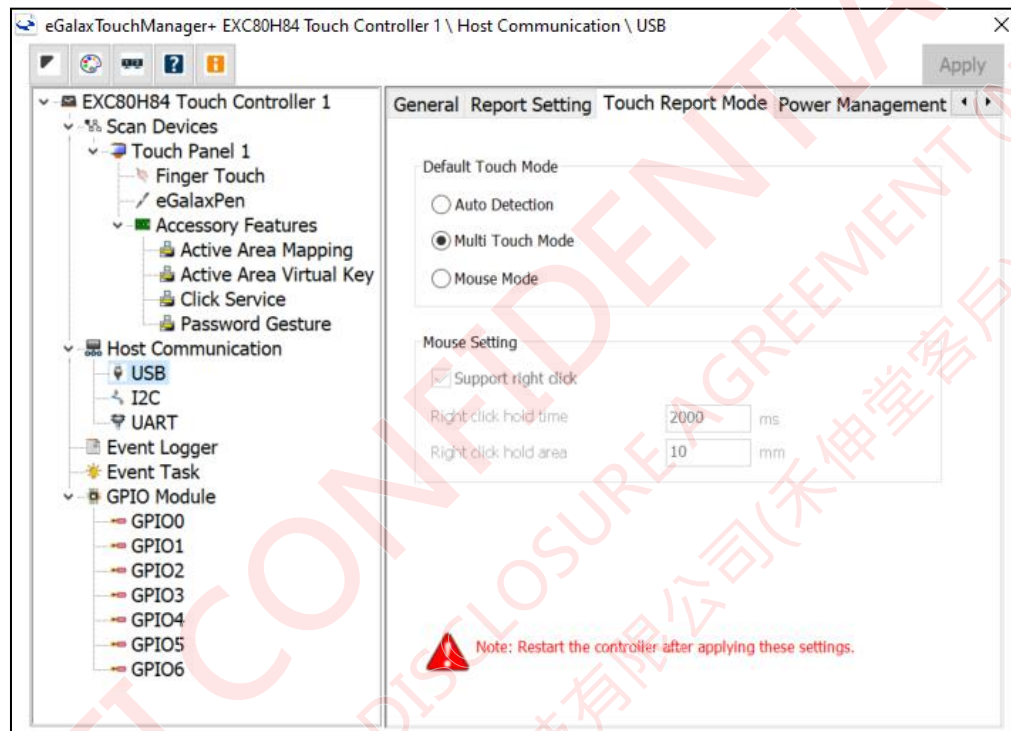
Once USB is enabled, the user can configure the maximum points of finger touch, the maximum number of pens and their priority.



Report Setting																	
Report Setting	<p>Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices.</p> <div><p>Report Setting</p><table><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>2</td><td>Medium</td></tr><tr><td>Virtual Key</td><td>ON </td><td></td><td></td></tr></table><div><div>ON</div><div>OFF</div></div></div>	Setting	Enable	Max Points	Priority	Finger	ON	10	High	Pen	ON	2	Medium	Virtual Key	ON 		
Setting	Enable	Max Points	Priority														
Finger	ON	10	High														
Pen	ON	2	Medium														
Virtual Key	ON 																
Note	<p>Restart the controller after applying these settings.</p>																

6.1.C. USB \ Touch Report Mode

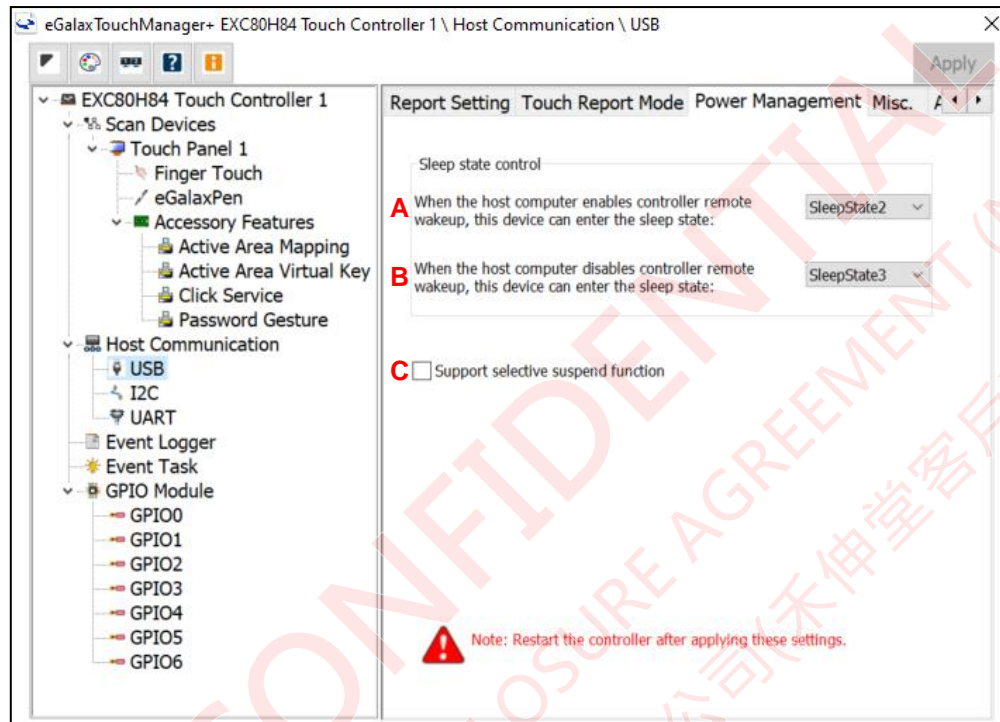
By default, EETI touch controllers communicate with the host through USB HID inbox driver. User can select multi-touch mode, mouse mode or whichever is preferable. Touch sensor can be emulated as a mouse device and support mouse right click. User can configure **Right click hold time** and **Right click hold area**.



Default Touch Mode	
Auto Detection	Touch device reports in mouse mode at startup, and it can be switched to Multi-Touch Mode if receiving the mode switch command from host system.
Multi-Touch Mode	Always report in multi-touch mode.
Mouse Mode	Always report single touch as a mouse device.
Mouse Setting	
Support right click	Enable/Disable mouse right click function.
Right click hold time	The time for a constant touch to trigger mouse right click.
Right click hold area	The area of a constant touch to trigger mouse right click.
Note	Restart the controller after applying these settings.

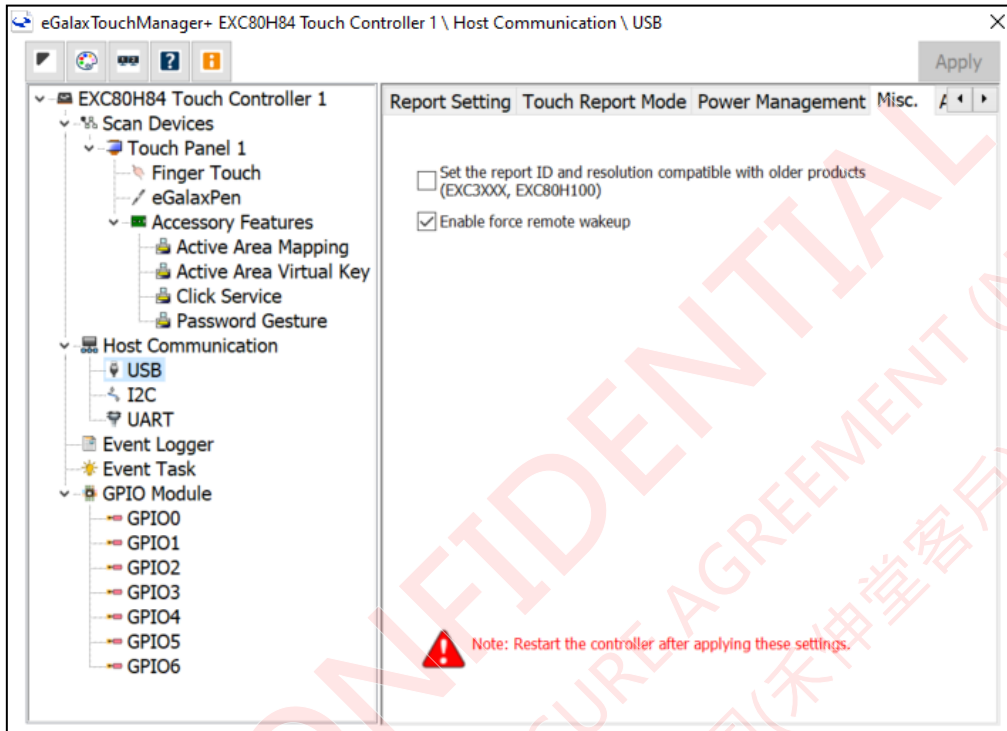
6.1.D. USB \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting for USB interface.



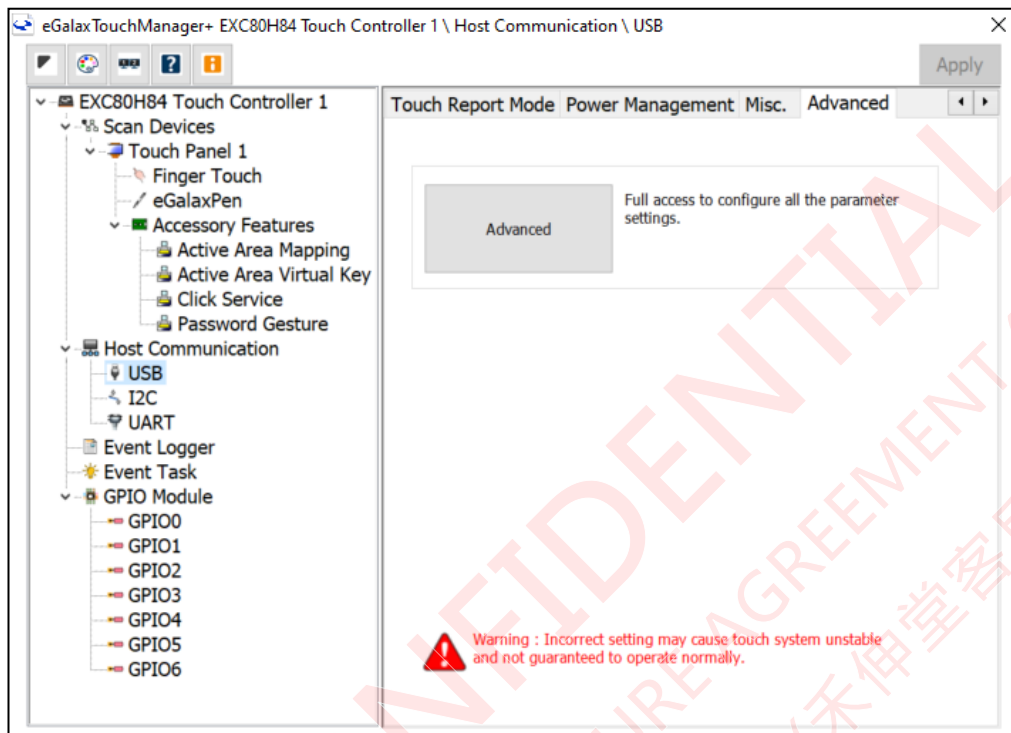
Sleep State Control	
A	Select from SleepState 1 ~ 3.
B	Select from SleepState 1 ~ 3.
C	Enable/Disable selective suspend function.
Note	<u>Restart the controller</u> after applying these settings.

6.1.E. USB \ Misc.



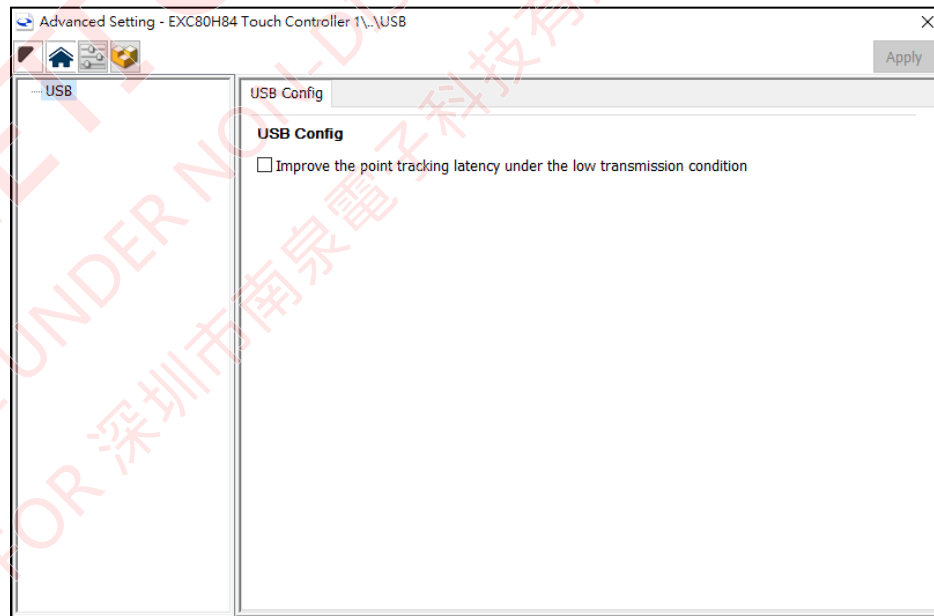
Misc.	
Protocol Compatibility	Enable/Disable the old product compatible protocol.
Enable force remote wakeup	Enable/Disable force remote wakeup.
Note	Restart the controller after applying these settings.

6.1.F. USB \ Advanced



Advanced

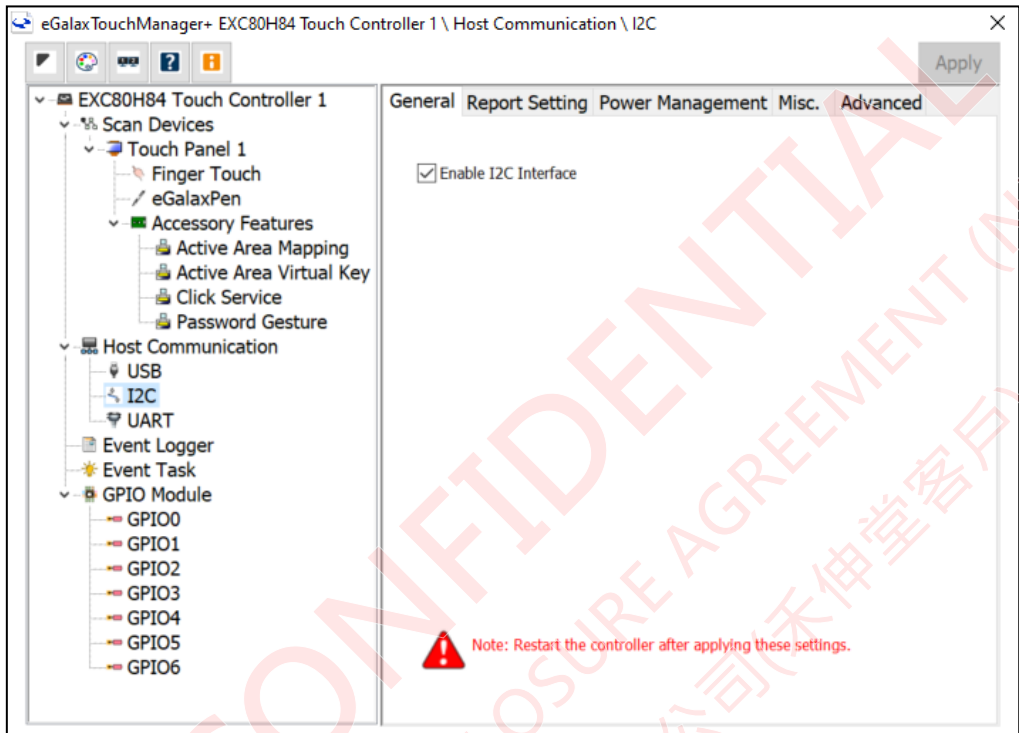
Open the **USB Config** advanced parameter setting page.



- Improve the point tracking latency under the low transmission condition.
This function can reduce the panning latency and improve the user's drawing experience under a poor performance communication interface/system.
This function might cause decreasing in the report rate and poor linearity.

6.2. Host Communication \ I2C

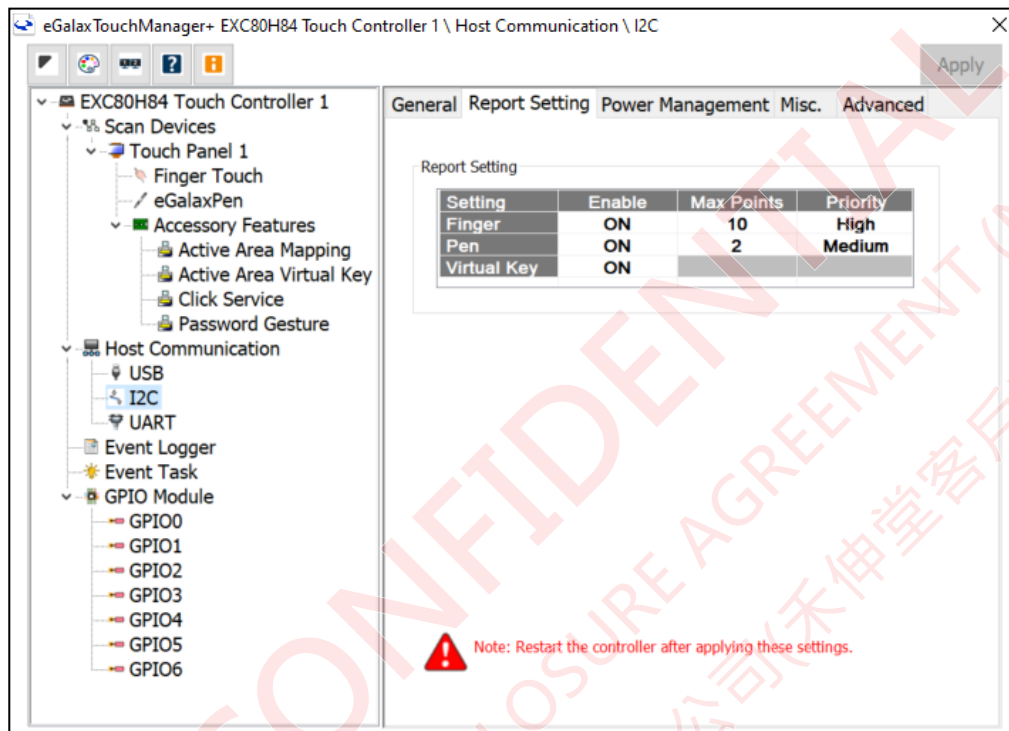
6.2.A. I2C \ General



General	
Enable I2C Interface	Enable/Disable I2C Function.
Note	Restart the controller after applying these settings.

6.2.B. I2C \ Report Setting

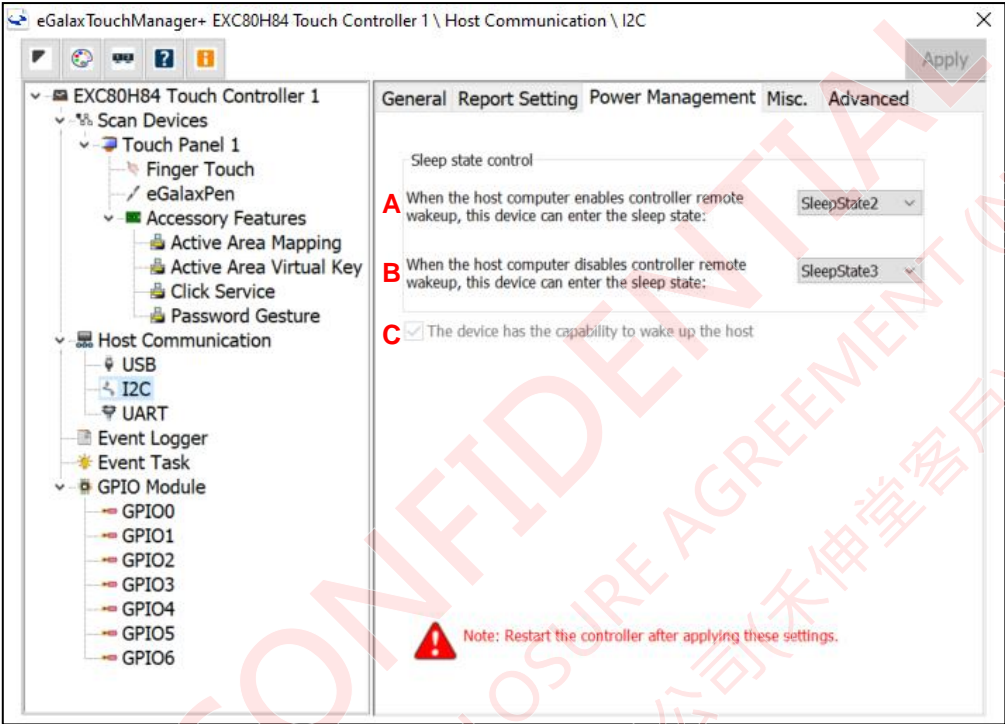
Once I2C is enabled, the user can configure the maximum points of finger touch, the maximum number of pens and their priority.



Report Setting																																																
Report Setting	Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices.																																															
	<div><div>Report Setting</div><table><thead><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr></thead><tbody><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>1</td><td>Medium</td></tr><tr><td>Virtual Key</td><td>ON</td><td>2</td><td></td></tr><tr><td></td><td></td><td>3</td><td></td></tr><tr><td></td><td></td><td>4</td><td></td></tr><tr><td></td><td></td><td>5</td><td></td></tr><tr><td></td><td></td><td>6</td><td></td></tr><tr><td></td><td></td><td>7</td><td></td></tr><tr><td></td><td></td><td>8</td><td></td></tr><tr><td></td><td></td><td>9</td><td></td></tr><tr><td></td><td></td><td>10</td><td></td></tr></tbody></table></div>	Setting	Enable	Max Points	Priority	Finger	ON	10	High	Pen	ON	1	Medium	Virtual Key	ON	2				3				4				5				6				7				8				9				10
Setting	Enable	Max Points	Priority																																													
Finger	ON	10	High																																													
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		10																																														
Note	<u>Restart the controller</u> after applying these settings.																																															

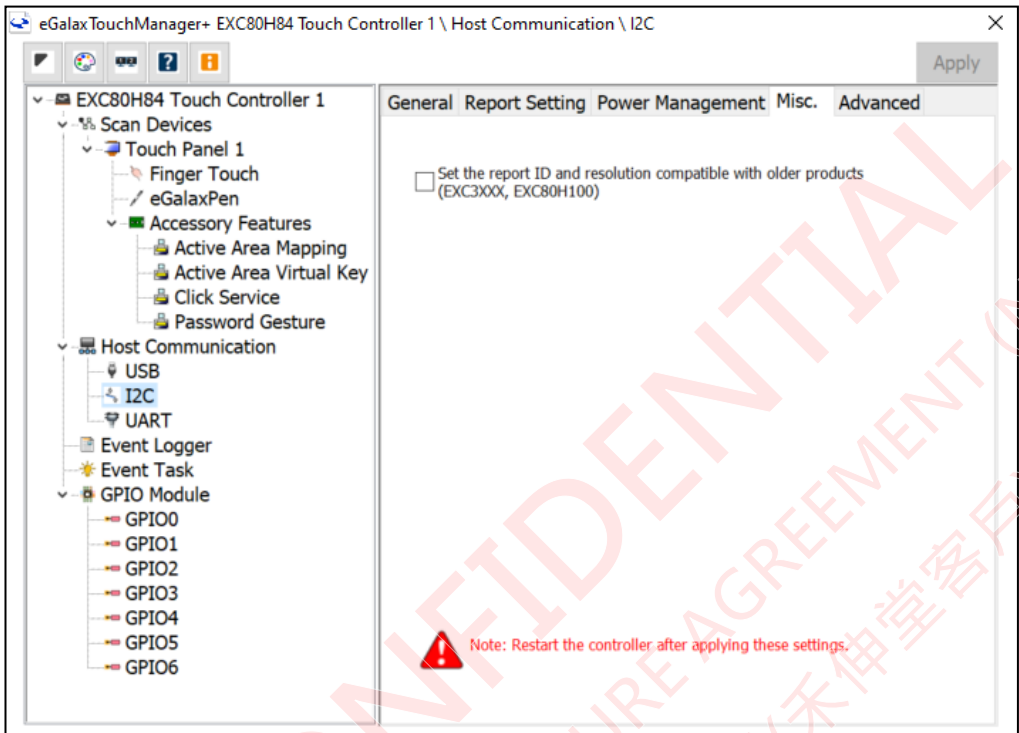
6.2.C. I2C \ Power Management

The user can select the preferred SleepState in accordance with Host's remote wakeup setting for I2C interface.



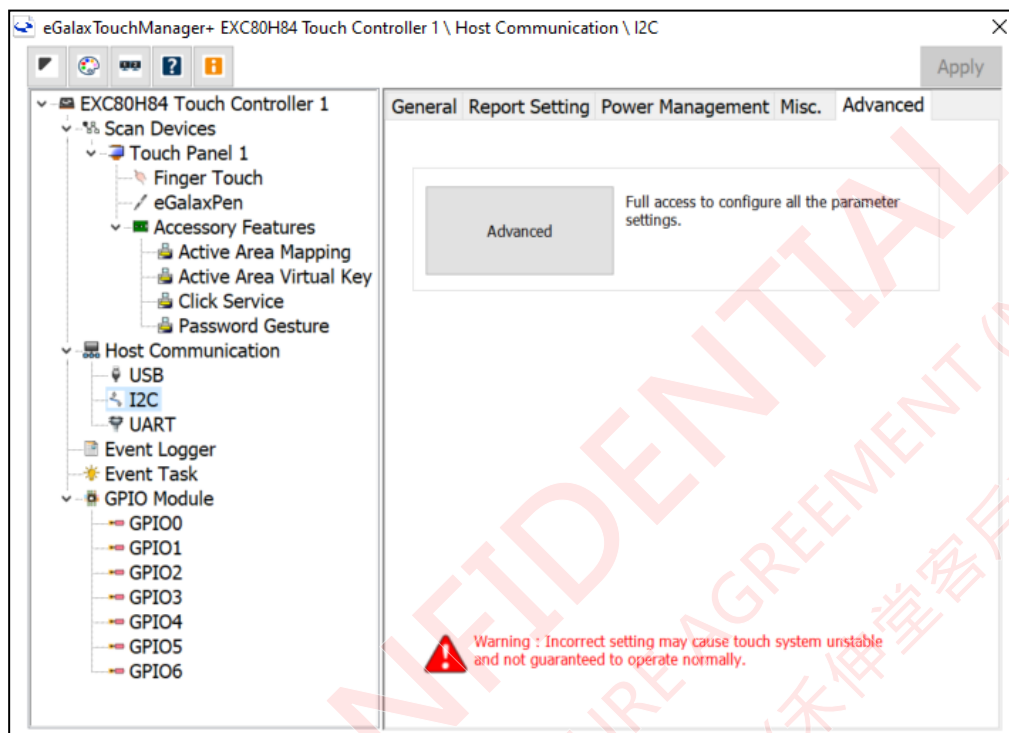
Sleep State Control	
A	Select from SleepState 1 ~ 3.
B	Select from SleepState 1 ~ 3.
C	Empower the device to remotely wake up the host.
Note	<u>Restart the controller</u> after applying these settings.

6.2.D. I2C \ Misc.



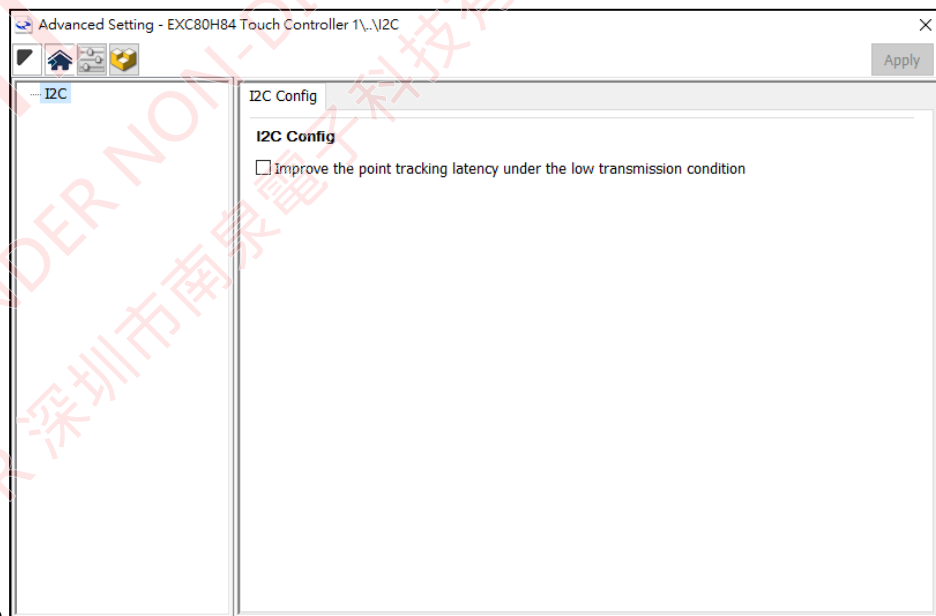
Misc.	
Protocol Compatibility	Enable/Disable the old product compatible protocol.
Note	Restart the controller after applying these settings.

6.2.E. I2C \ Advanced



Advanced

Open the I2C Config advanced parameter setting



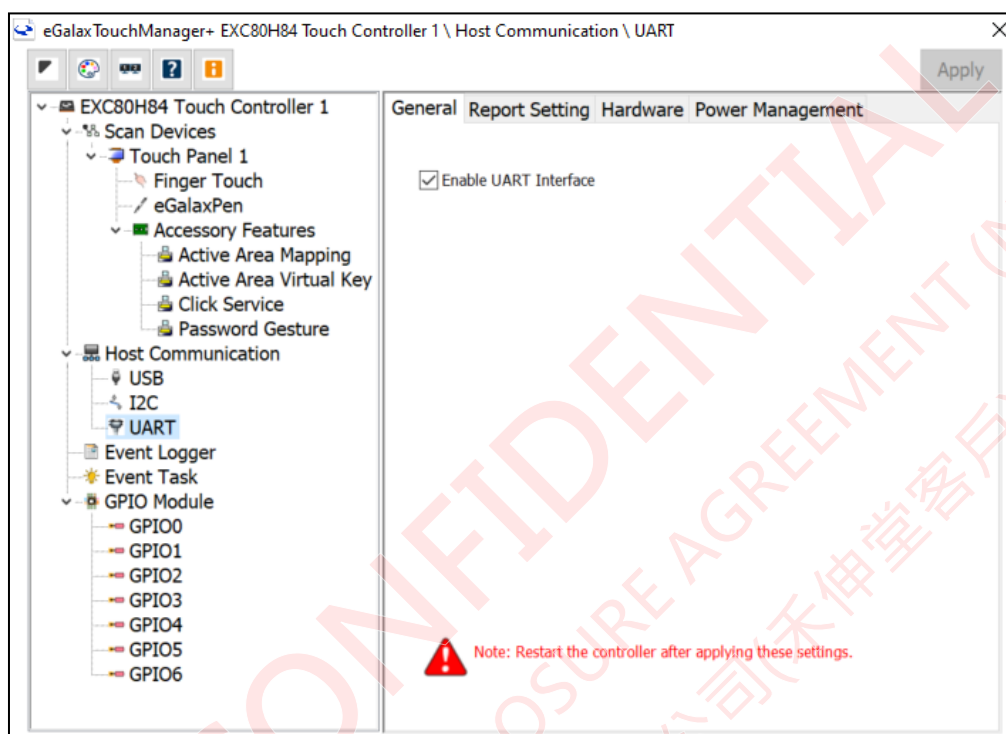
page.

- Improve the point tracking latency under the low transmission condition. This function can reduce the panning latency and improve the user's drawing experience under a poor performance communication interface/system. This function might cause decreasing in the report rate and poor linearity.

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6.3. Host Communication \ UART

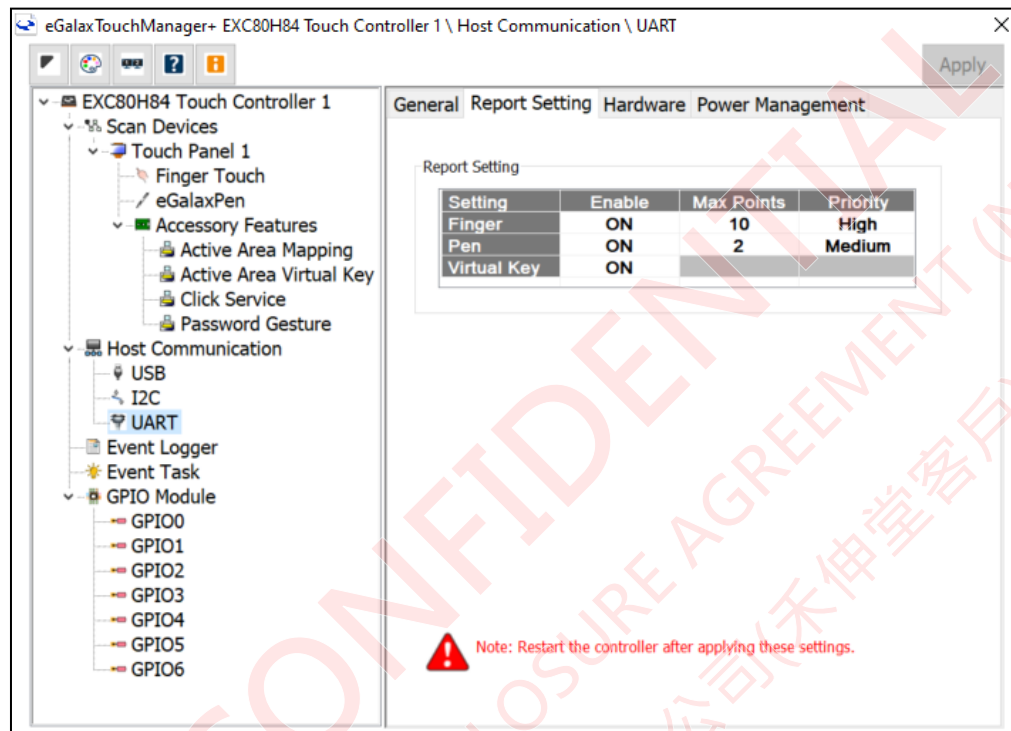
6.3.A. UART \ General



General	
Enable UART Interface	Enable UART Function.
Note	Restart the controller after applying these settings.

6.3.B. UART \ Report Setting

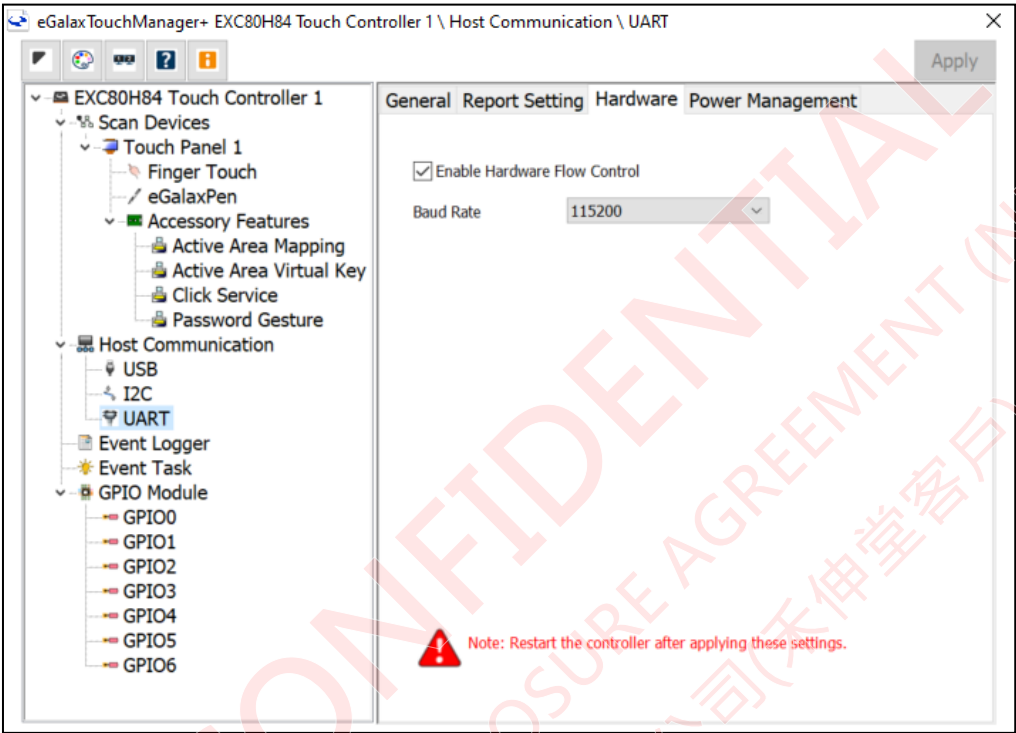
Once UART is enabled, the user can configure the maximum points of finger touch, the maximum number of pens and their priority.



Report Setting																	
Report Setting	<p>Use the drop-down lists to enable feature device function, select the number of support touches, and the priority of the feature devices.</p> <div><p>Report Setting</p><table><tr><th>Setting</th><th>Enable</th><th>Max Points</th><th>Priority</th></tr><tr><td>Finger</td><td>ON</td><td>10</td><td>High</td></tr><tr><td>Pen</td><td>ON</td><td>2</td><td>Medium</td></tr><tr><td>Virtual Key</td><td>ON</td><td></td><td>Low</td></tr></table><div><div>Medium</div><div>Low</div><div>Medium</div><div>High</div></div></div>	Setting	Enable	Max Points	Priority	Finger	ON	10	High	Pen	ON	2	Medium	Virtual Key	ON		Low
Setting	Enable	Max Points	Priority														
Finger	ON	10	High														
Pen	ON	2	Medium														
Virtual Key	ON		Low														
Note	<p>Restart the controller after applying these settings.</p>																

6.3.C. UART \ Hardware

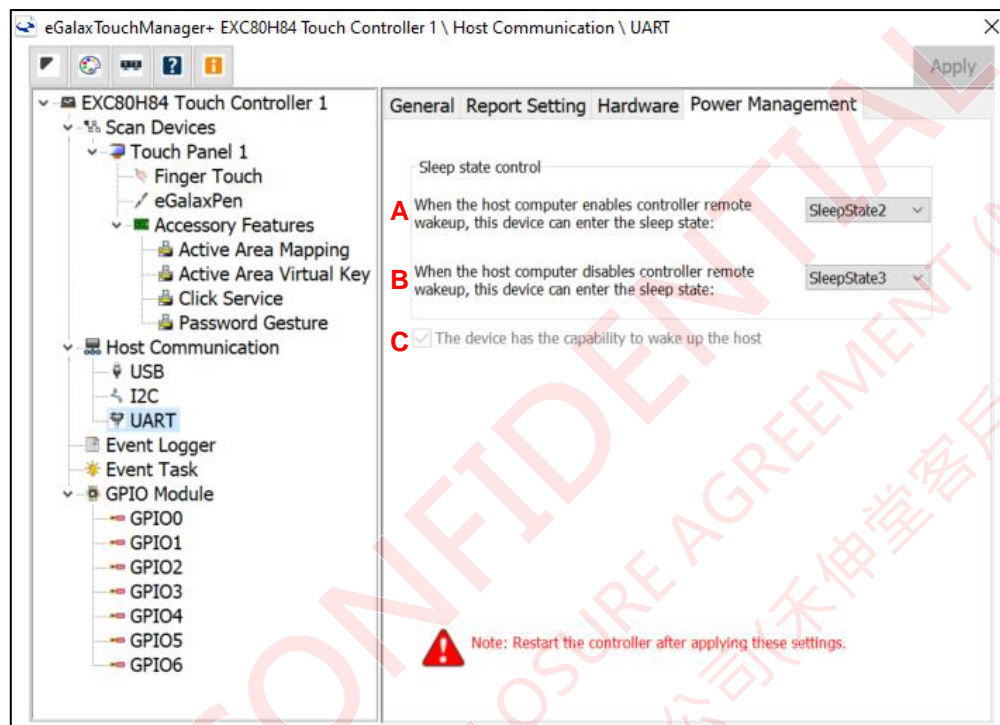
User can enable Hardware Flow Control and select the desirable baud rate.



Hardware	
Enable Hardware Flow Control	Enable/Disable Hardware Flow Control function.
Baud Rate	Available UART Baud Rate: 9600, 19200, 38400, 57600, 115200.
Note	Restart the controller after applying these settings.

6.3.D. UART \ Power Management

User can select the preferred SleepState in accordance with Host's remote wakeup setting for UART interface.

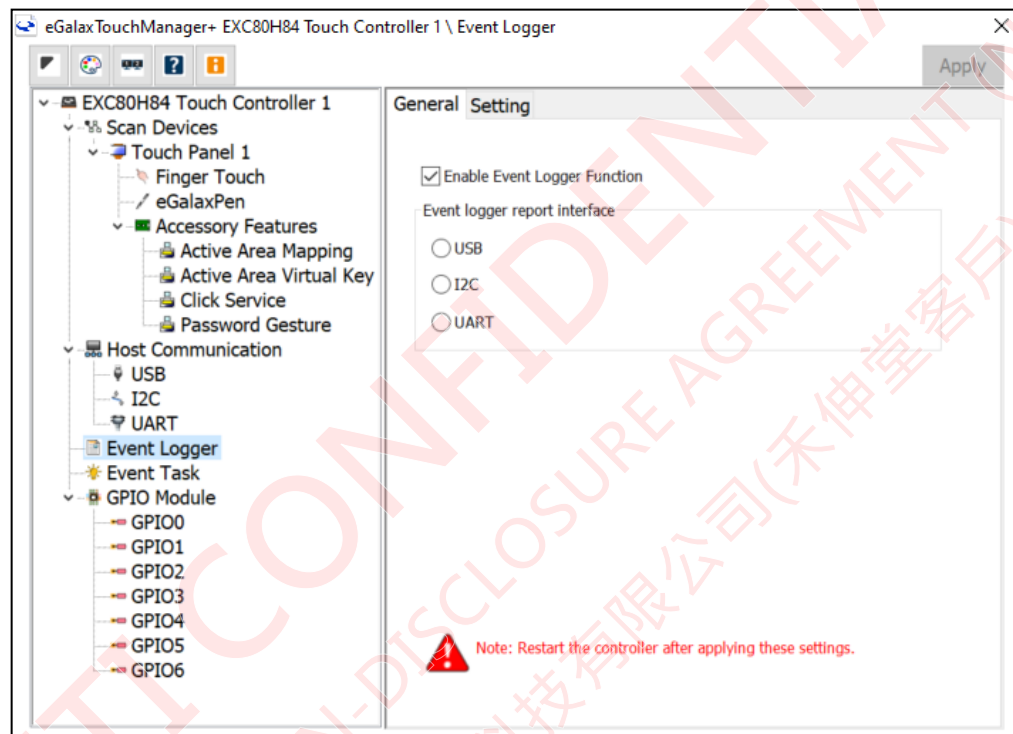


Sleep State Control	
A	Select from SleepState 1 ~ 3.
B	Select from SleepState 1 ~ 3.
C	Empower the device to remotely wake up the host.
Note	Restart the controller after applying these settings.

7. Event Logger

When **eGalaxTouchMon** is enabled, the **Event Logger** will capture the events sent from **Event Service** of **Scan Device**. It will log the events into the Windows event viewer. The 3rd party application can also capture these events by integrating with EETI HID API.

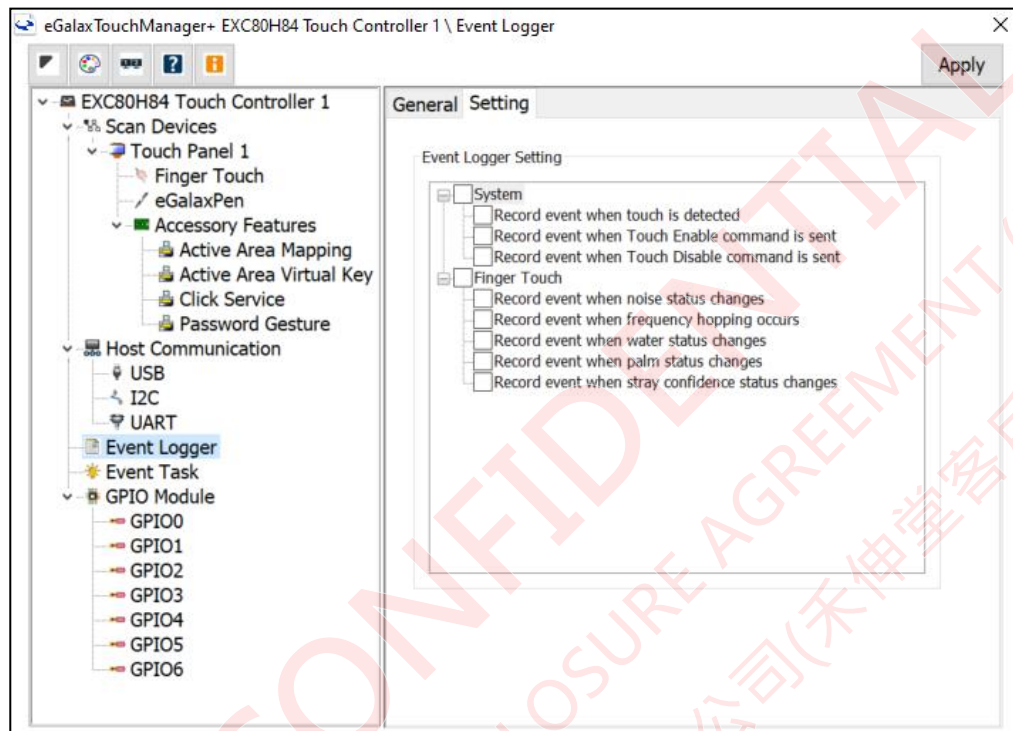
7.1. Event Logger \ General



General	
Enable Event Logger Function	Enable/Disable Event logger function
Event logger report interface	
USB	Enable/Disable the Event Logger to report the events to OS by USB interface.
I2C	Enable/Disable the Event Logger to report the events to OS by I2C interface.
UART	Enable/Disable the Event Logger to report the events to OS by UART interface.
Note	Restart the controller after applying these settings.

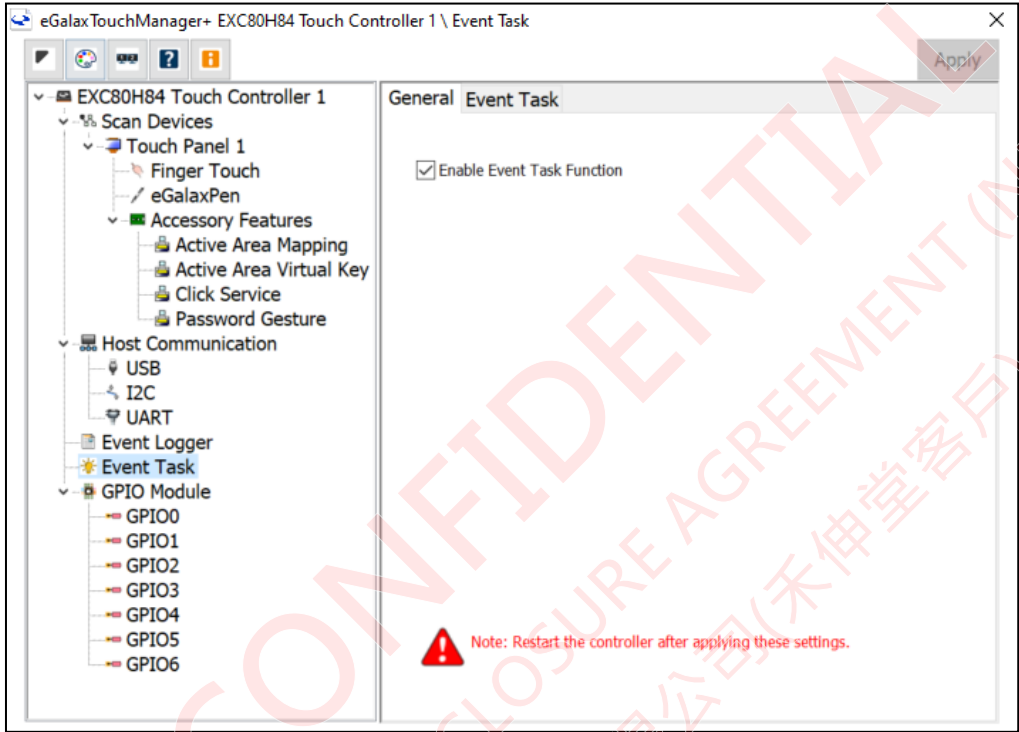
7.2. Event Logger \ Setting

User can select the events that Event Logger can capture. The events need to be enabled in the [Event Service](#) settings of Finger Touch.



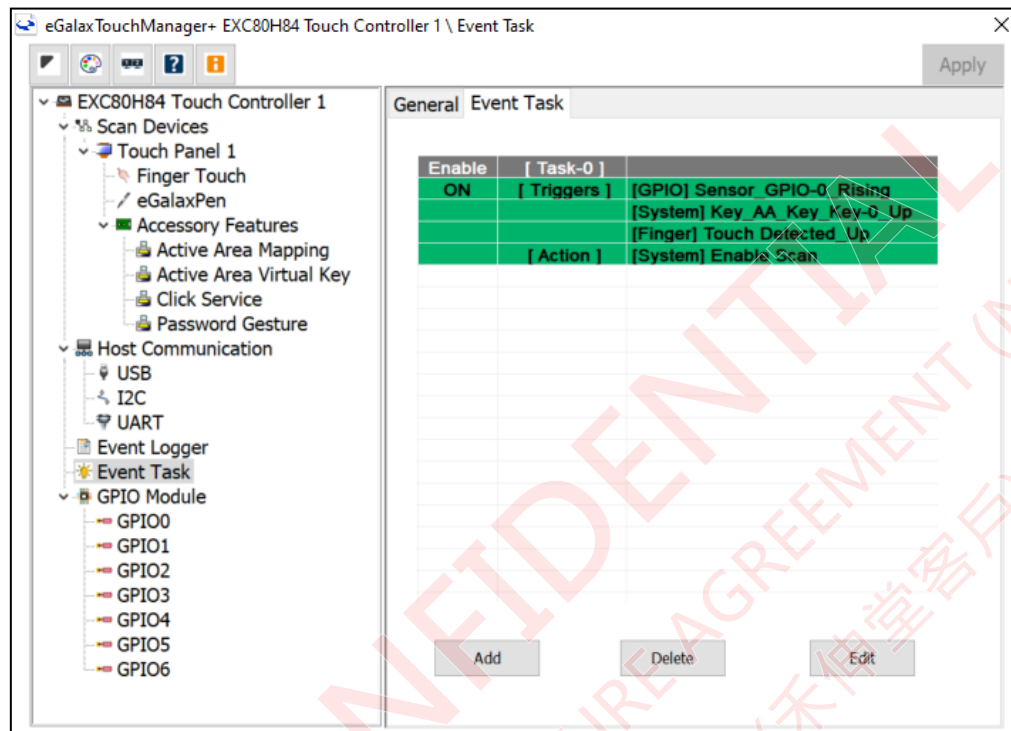
8. Event Task

8.1. Event Task \ General



General	
Enable / Disable	Enable/Disable Event Task function. This function empowers users to trigger a specific action with one or combine up to three events.
Note	Restart the controller after applying these settings.

8.2. Event Task \ Event Task

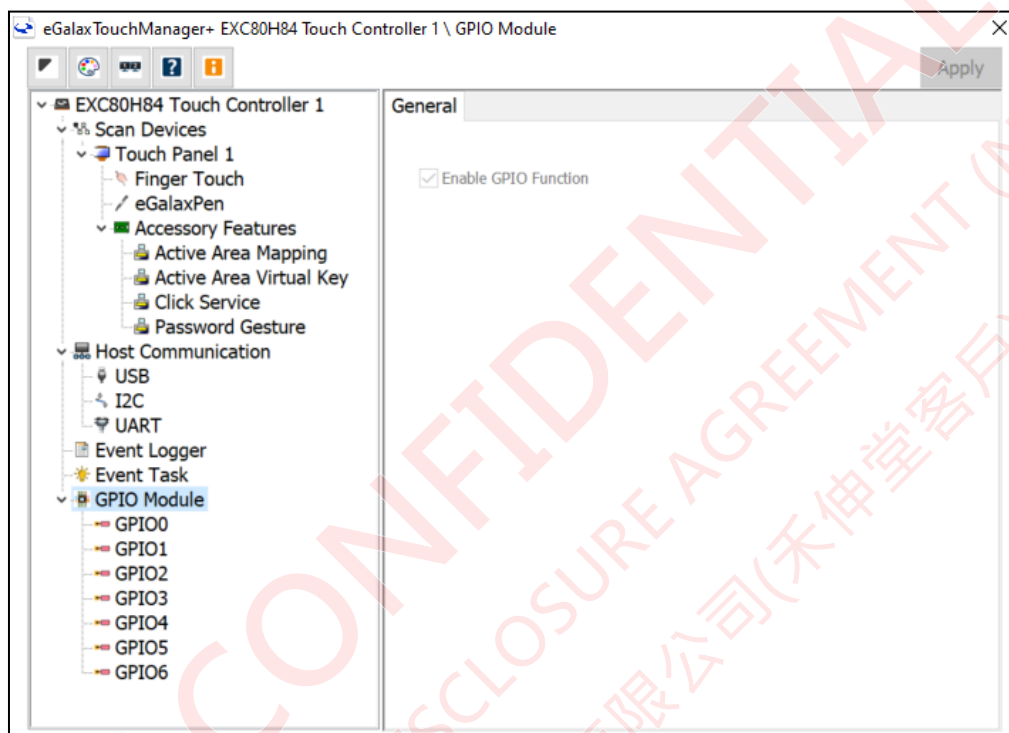


Event Task	
Add	Add a new Event Task.
Event task Editor	<p>There are three “triggers”. Select one or multiple triggers to execute the action selected from the box at the bottom.</p>
Delete	Delete the chosen Event Task.
Edit	Edit the chosen Event Task.

9. GPIO Module

EETI touch controllers have numbers of GPIO for driving or sensing signal.

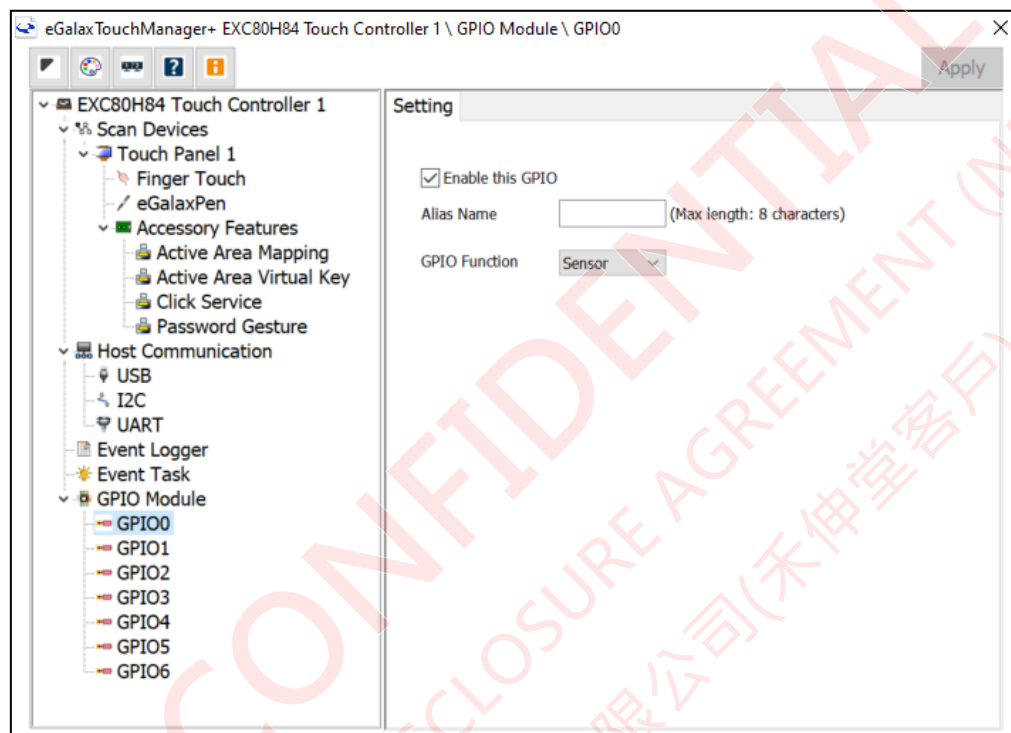
9.1. GPIO Module \ General



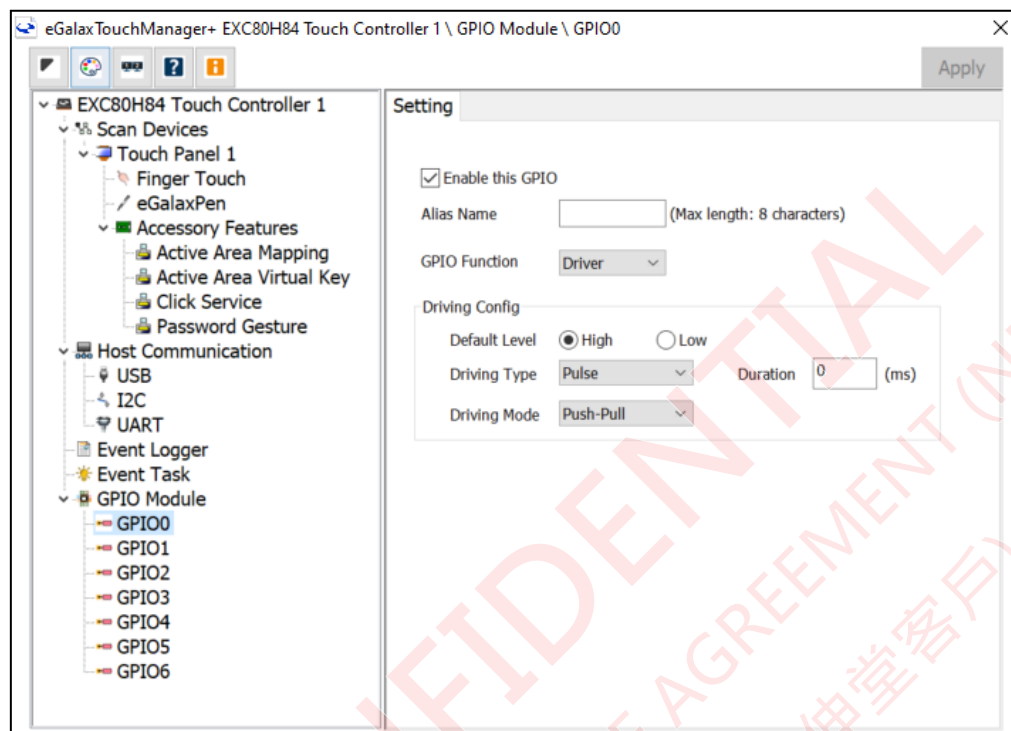
General	
Enable GPIO Function	Enable/Disable GPIO function.

9.2. GPIO \ Setting \ Driver

There are up to 7 GPIO pins on the Orion family controllers. User can select GPIO from 0 to 6, name and configure each selected one individually. EETI can customize the function of each GPIO pin. Please contact EETI FAEs for more information.



Setting	
Enable this GPIO	Enable/Disable this GPIO.
Alias Name	Name the GPIO (Max 8 characters)
GPIO Function	Define this GPIO to be Sensor or Driver. The picture above is chosen Sensor to be the GPIO function.



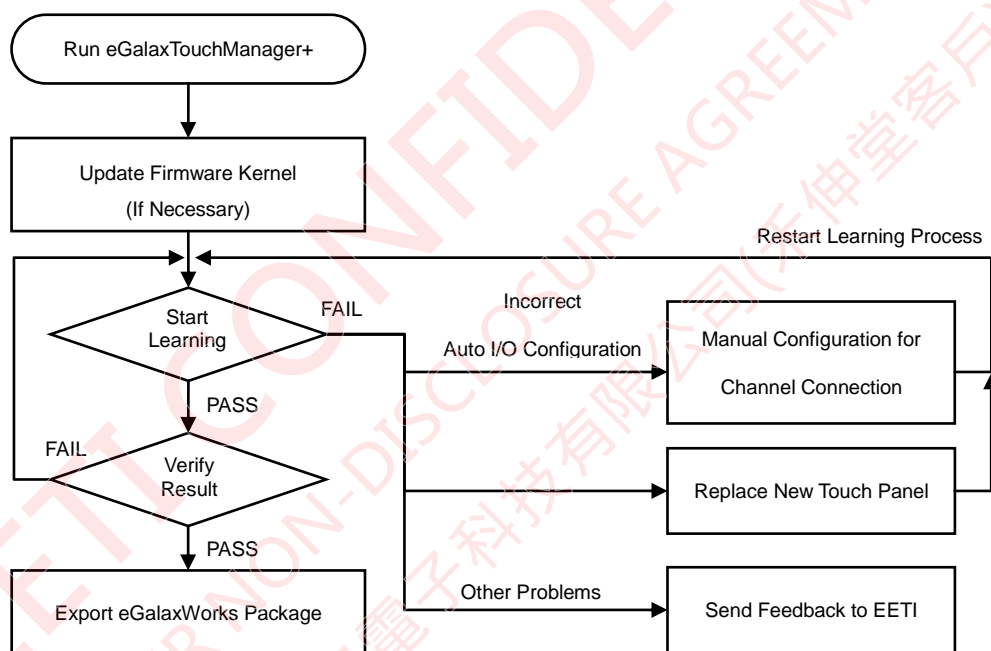
Setting	
Enable this GPIO	Enable/Disable this GPIO.
Alias Name	Name the GPIO (Max 8 characters)
GPIO Function	Define this GPIO to be Sensor or Driver. The picture above is chosen Driver to be the GPIO function.
Driving Config	
Default Level	Select the default level to be High or Low when IC powers on.
Driving Type	Level - pull the pin to high/low until the triggers end. Pulse - pull the pin to high/low for the predefined Duration (ms).
Driving Mode	Set the output mode of this GPIO as Push-Pull or Open-Drain.

10. Quick Setting

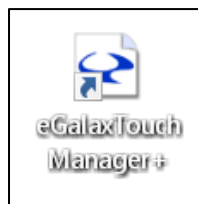
This Chapter will guide you through the auto-tuning procedure to fine-tune the touch system. Please check if the system hardware is set correctly. Once the auto-tuning procedure is completed, eGalaxTouch Manager+ will generate Firmware, Sensor Tester, and signal test tool.

We recommend using a fixed diameter conductive stick as the tuning medium rather than a finger to have a consistent contact area and touch report threshold.

10.1. Finger Touch Learning

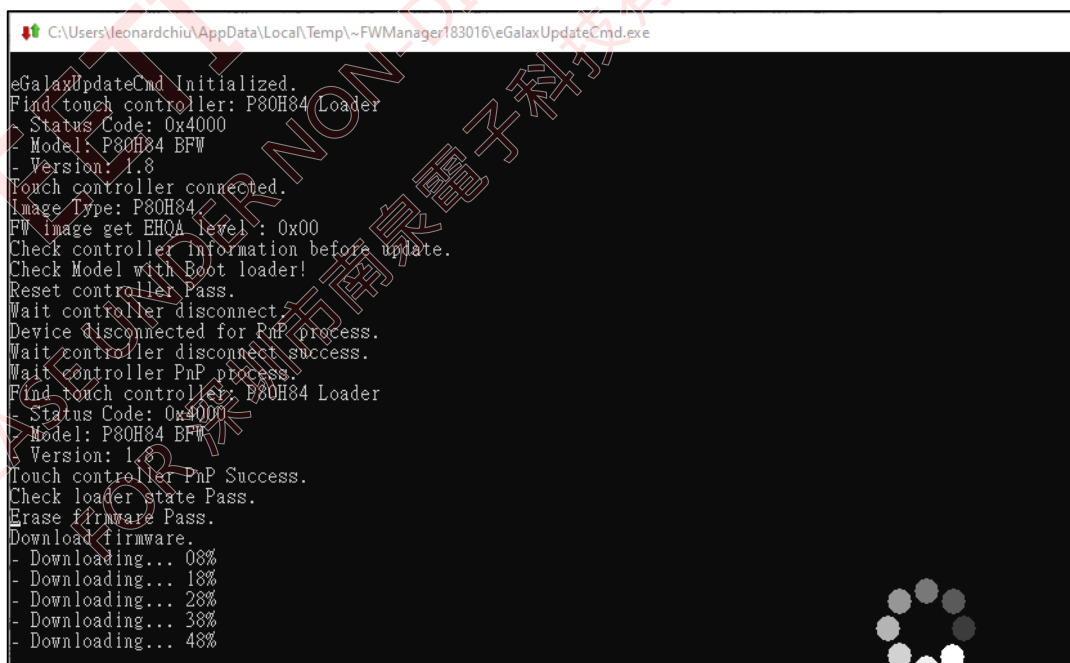
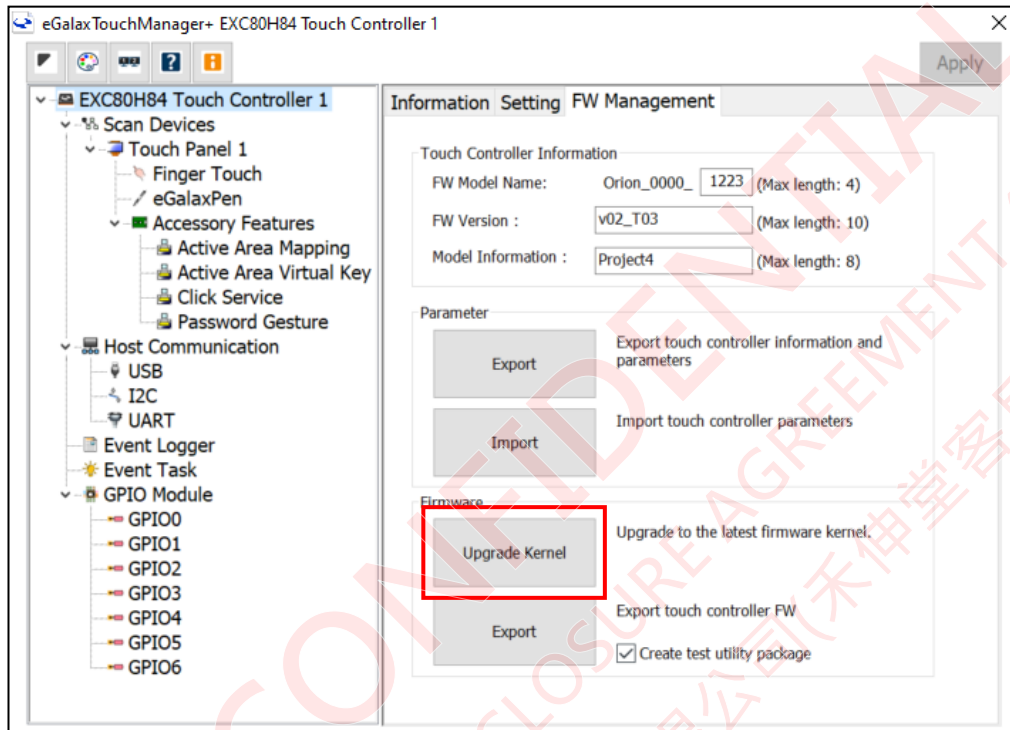


10.1.A. Execute eGalaxTouchManager+.exe



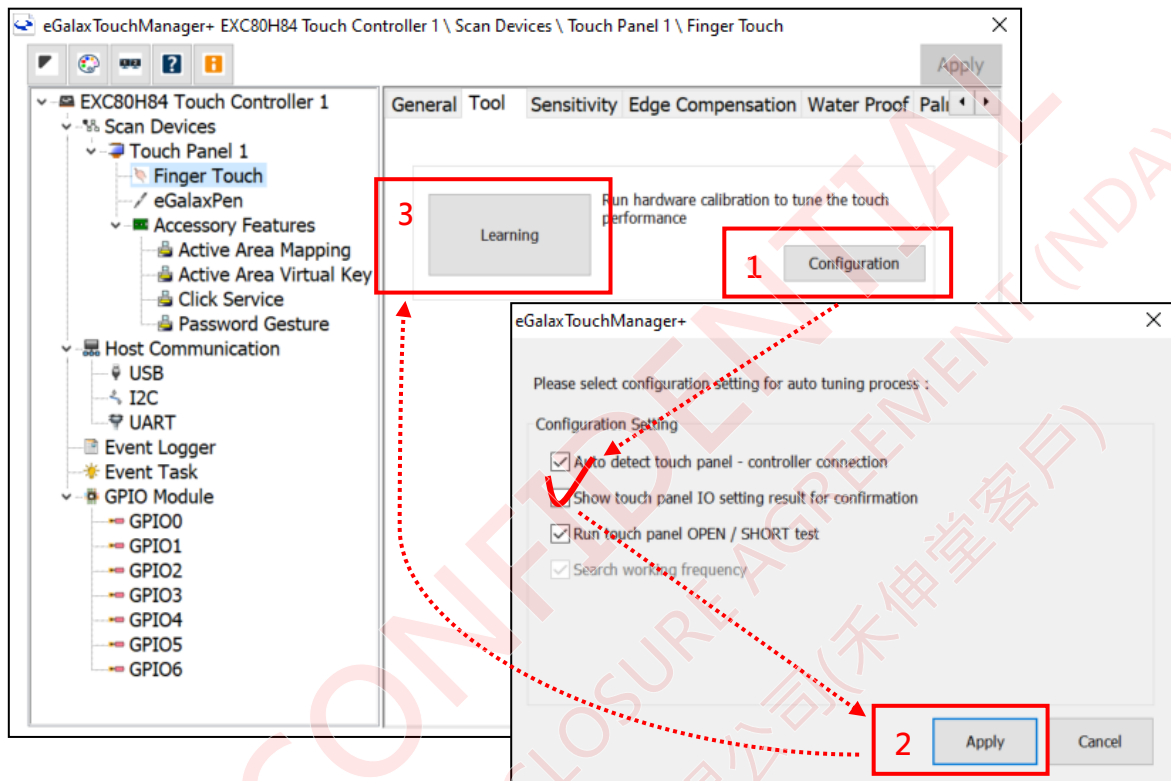
10.1.B. Update Kernel

Select “**EXC80H84 Touch Controller 1**”, go to “**FW Management**” tab, and click **Upgrade Kernel** button.



10.1.C. Start "Learning" for Finger Touch

Select "**Finger Touch**" from the left panel. Go to "**Tool**" tab on the right panel.



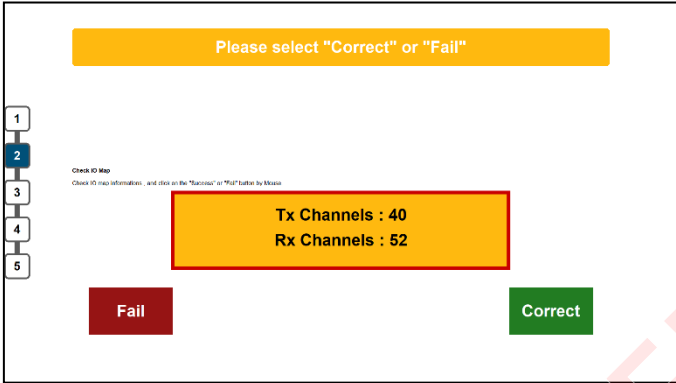
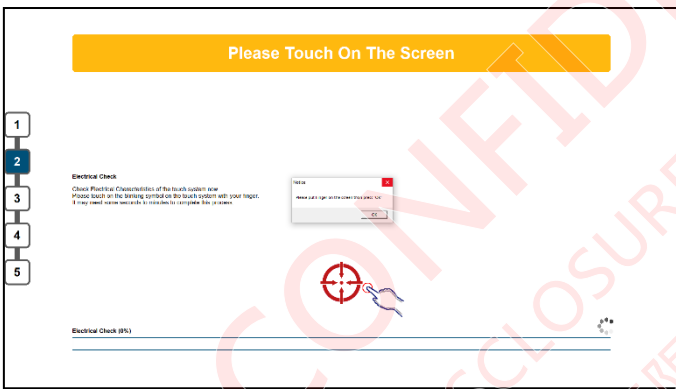


Before **Learning** process, please check all the Tx and Rx channels connection are correct.

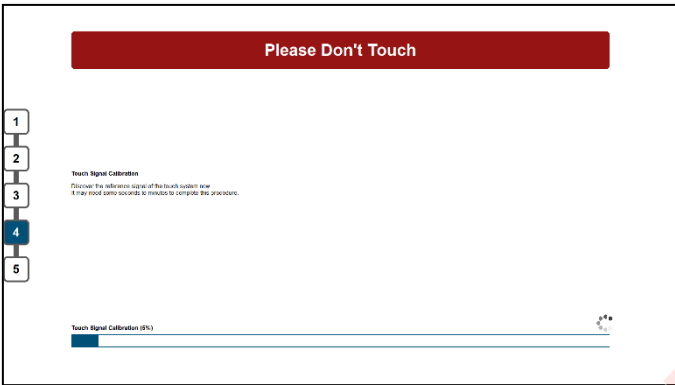
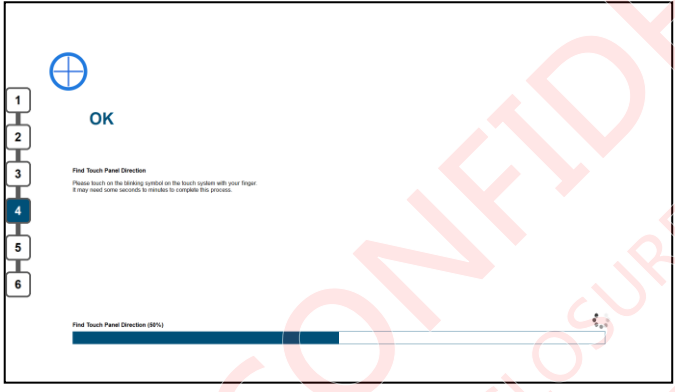
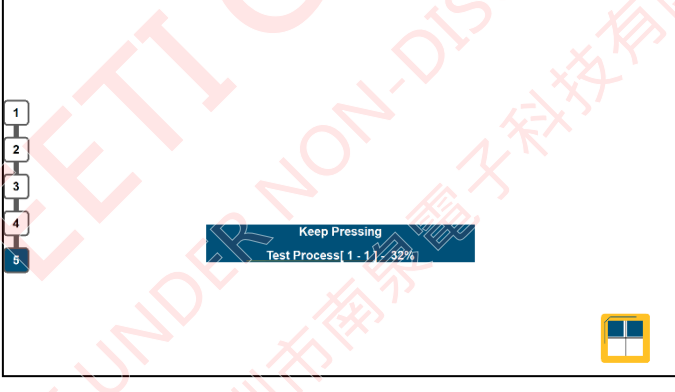
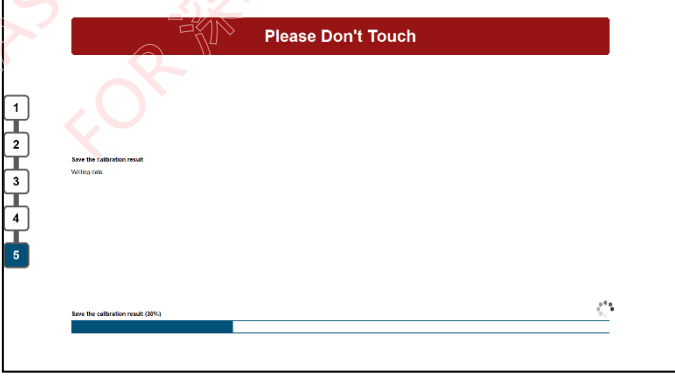
1. Click **Configuration** and check all the boxes for the first time tuning.
2. Click **Apply**.

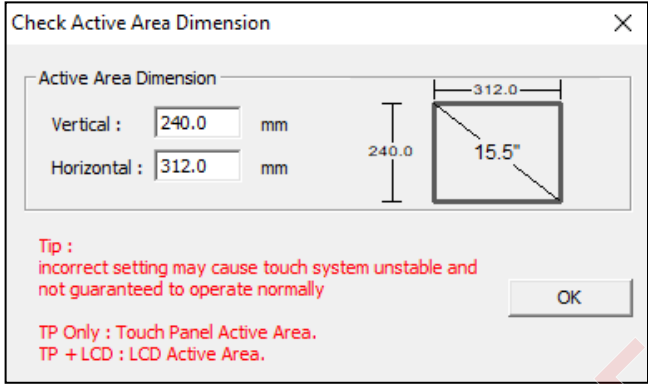

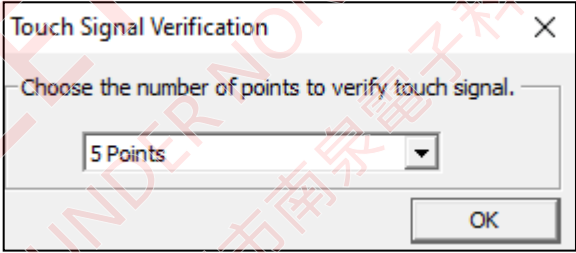
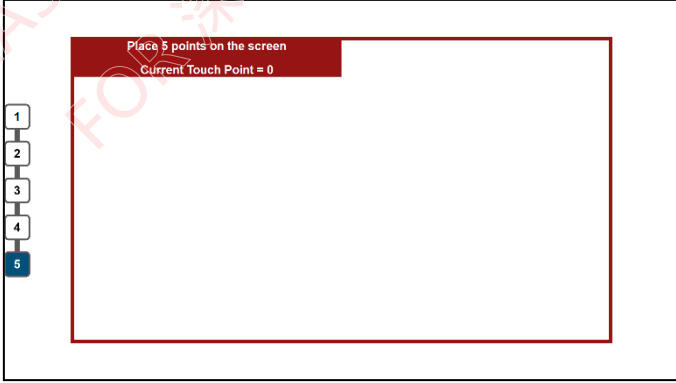
TM+ will detect touch panel and controller connection, check touch panel IO setting and run touch panel open/short test automatically.

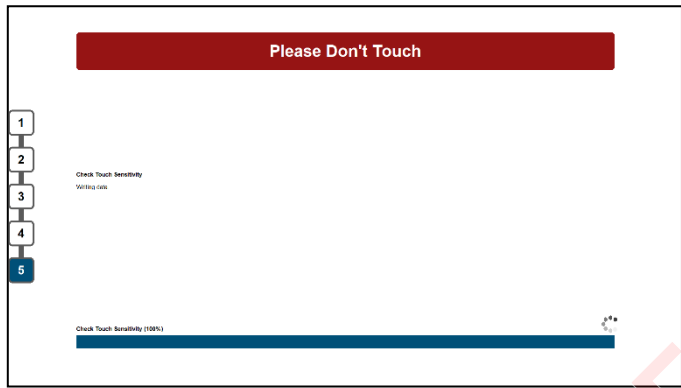
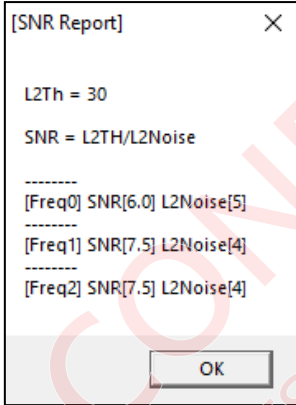
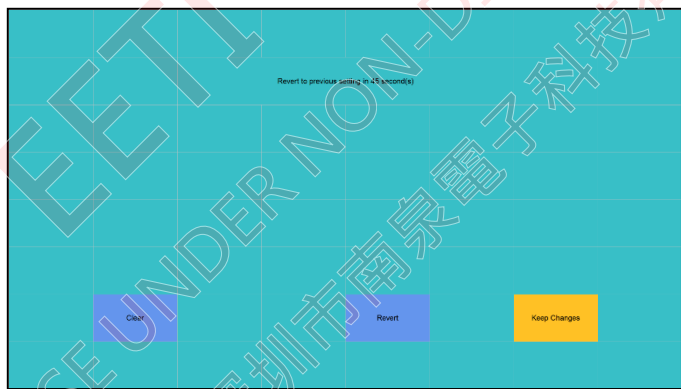
3. Now, please click **Learning** and follow the steps.

Screenshot	Comment
	<p>TM+ is discovering the touch system. Do NOT touch during this process.</p>


Screenshot	Comment
	<p>The number of driving and sensing channels will be shown on the screen. Click Correct to continue.</p> <p>If the numbers are not correct, please click Fail and refer to "Touch Panel – Hardware" to configure the channels connection.</p>
	<p>Check electrical characteristics of the touch system. Please put your finger on the screen and then press OK.</p>
	<p>TM+ is checking the electrical characteristic of the touch system.</p> <p>Please touch on the target and hold still until this process is completed.</p>
	<p>Please lift off fingers and do NOT touch before TM+ completes discovering the touch system.</p>

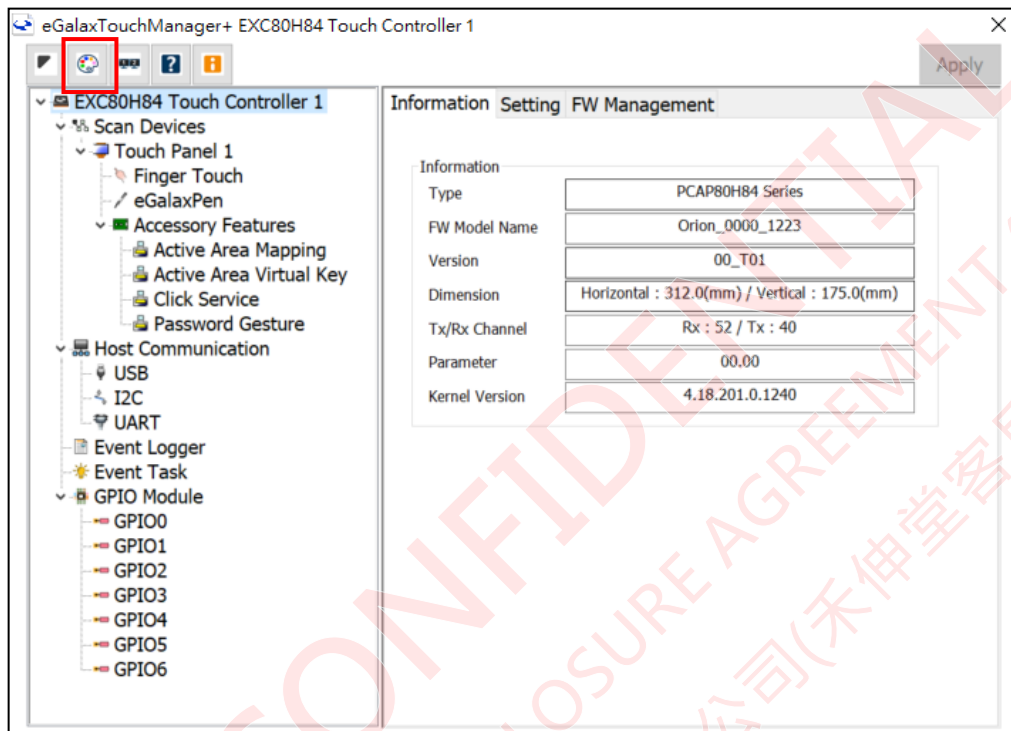
	<p>TM+ is collecting the background signal. Do NOT touch the screen at this stage.</p>
	<p>Please touch the target shown on the screen. TM+ is detecting the touch panel orientation.</p>
	<p>Please press on the target and hold still until data collection is completed. TM+ is calibrating the finger touch signal at this stage, so user MUST touch all four targets with consistent force</p>
	<p>After the touch signal data collection is completed, TM+ is saving the calibration result. Do NOT touch the screen at this stage.</p>

Screenshot	Comment
	<p>TM+ calculates possible values by reference the Tx & Rx channels and typical channel pitch. Please input the correct dimension of touch panel in this step.</p>
	<p>TM+ is saving the calibration result. Do NOT touch the screen at this stage.</p>
	<p>Choose the number of touch points to verify touch signal.</p>
	<p>Following the instructions, put the correct number of touch points on the panel.</p>

Screenshot	Comment
	<p>TM+ is saving and writing data into the touch controller. Please do NOT touch the screen until the process is completed.</p>
	<p>An SNR report for reference.</p>
	<p>Signal learning is completed. Draw Test screen will pop up. User can test finger touch performance and accuracy here.</p> <p>Please touch Keep Changes before the timer ends, <u>or the signal learning settings will not be saved.</u></p>

10.1.D. Check result

Click  to open Draw Test page and validate the touch performance.



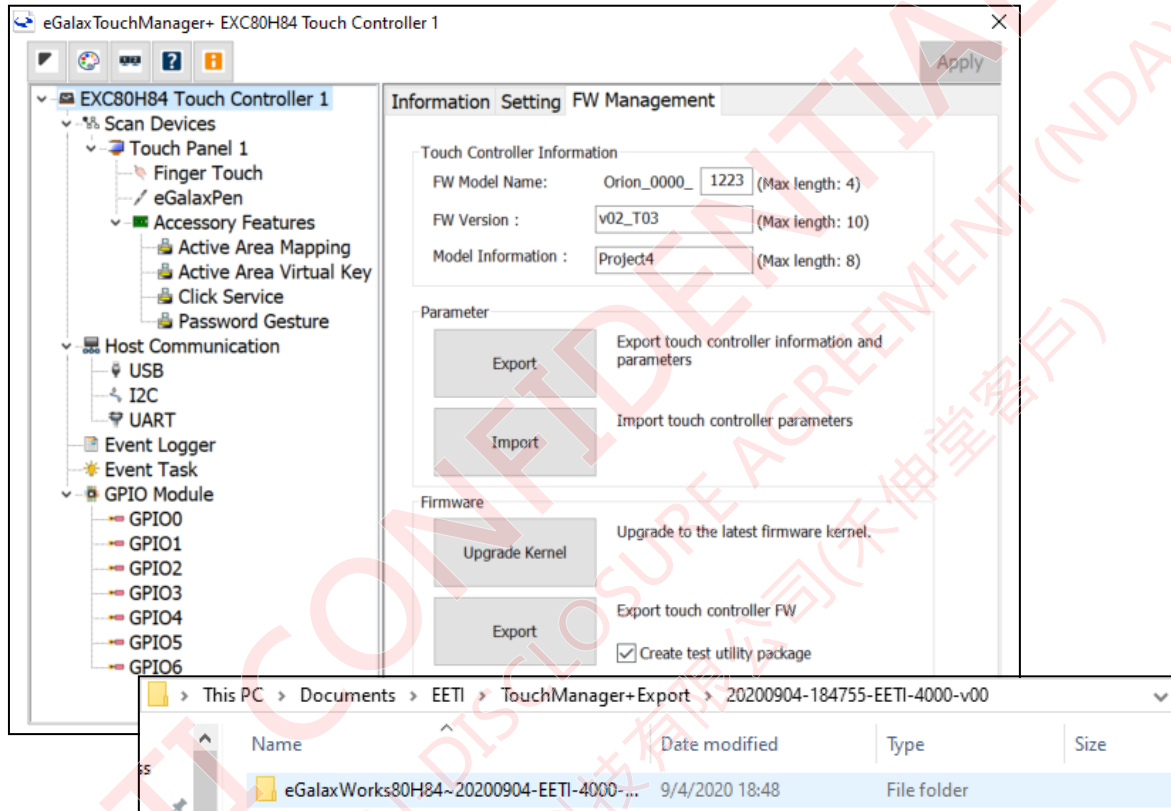
On the Draw Test page, different finger touch points will show in different colours and the report rate will show in the left-top corner.



10.1.E. Export Production/Test tool package.

Select “**EXC80H84 Touch Controller 1**”, and go to “**FW Management**” tab. User can customize a 4 digits model number and firmware version. Check **Create test utility package** and click **Export**. The test utility package will be in the directory:

C:\Users\[UserName]\Documents\EETI\TouchManager+Export\



10.2. Extra Settings

10.2.A. Manual Configuration for Channel Connection

If the touch sensor design comply with EETI's SDR, TM+ can automatically detect the channel connections of controller and touch sensor. For other sensors, please enter the Tx and Rx channels manually.

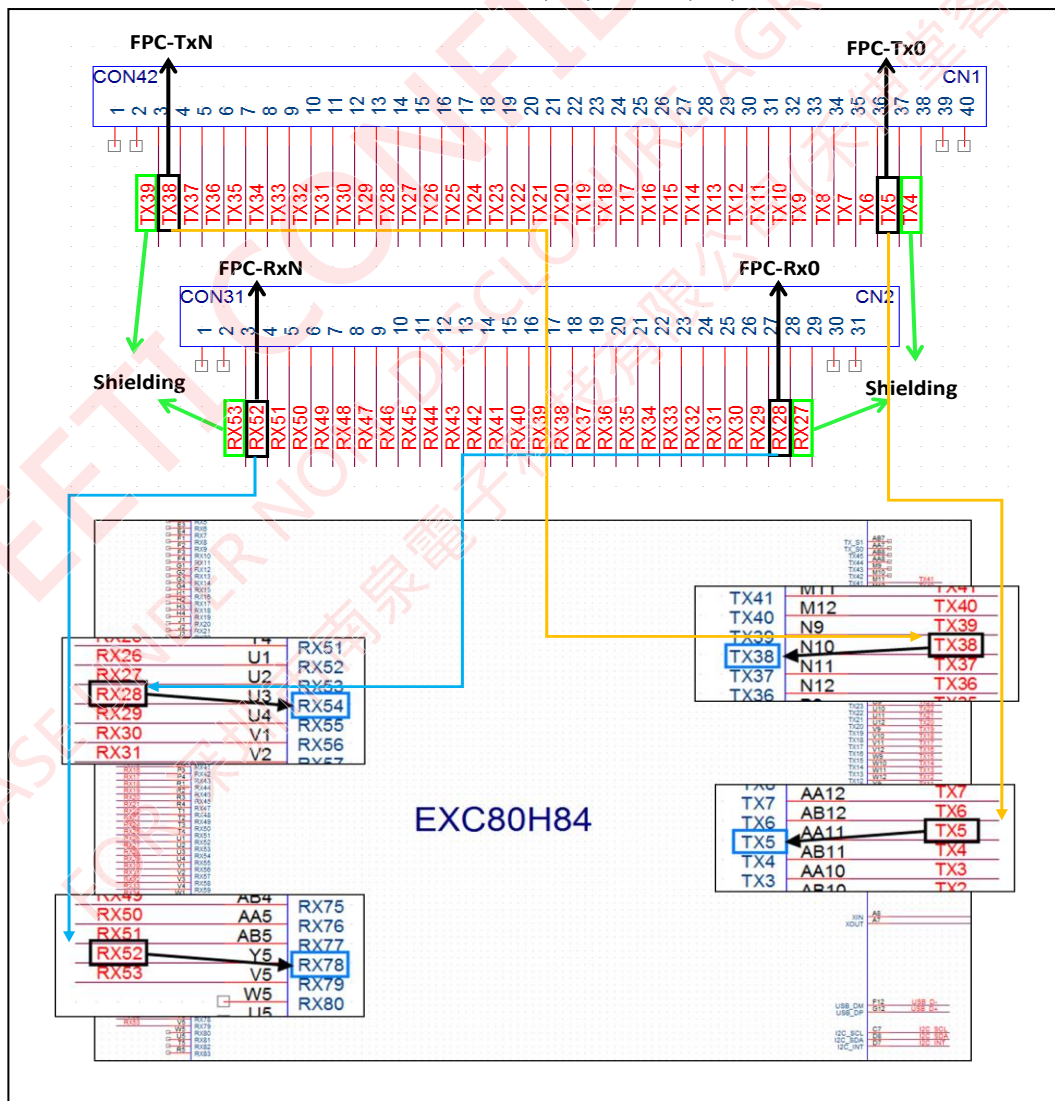
There are two ways to get the correct **Start (CH)** and **To (CH)**. One way is to check the schematic. The other method is to check the RAW data in **eGalaxTuner**.

i. From Schematic

Take the following diagram for example; please trace the valid Tx/Rx channels (not including shielding traces) down to the IC channel pins.

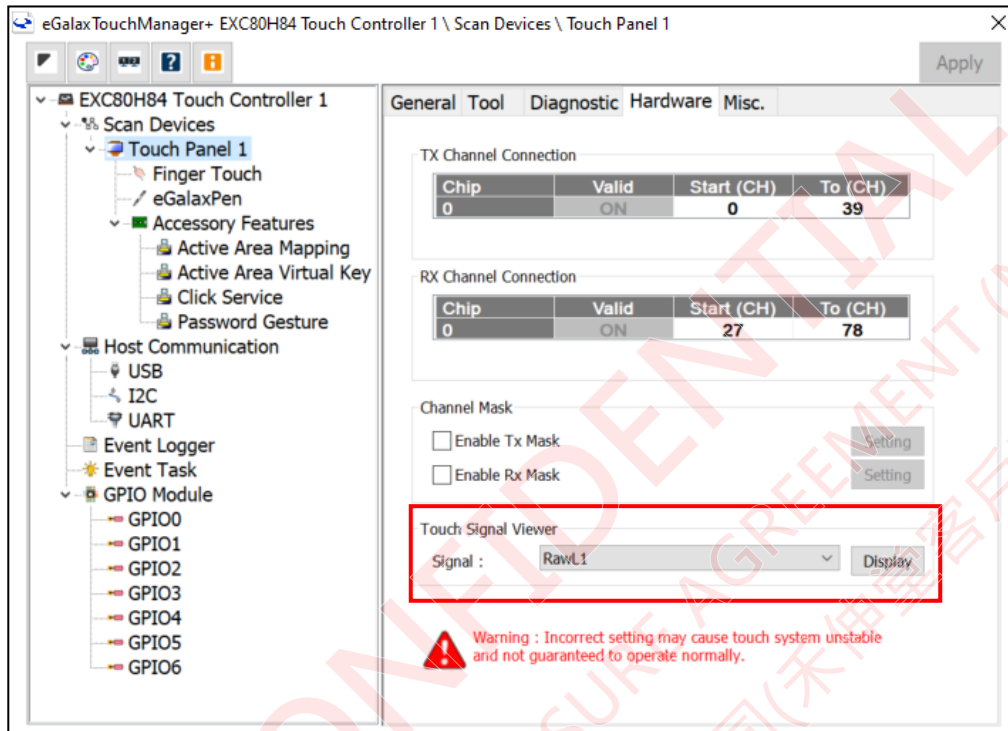
Set Tx Channel Connection-Start(CH)=5, To(CH)=38.

Set Rx Channel Connection-Start(CH)=54, To(CH)=78.



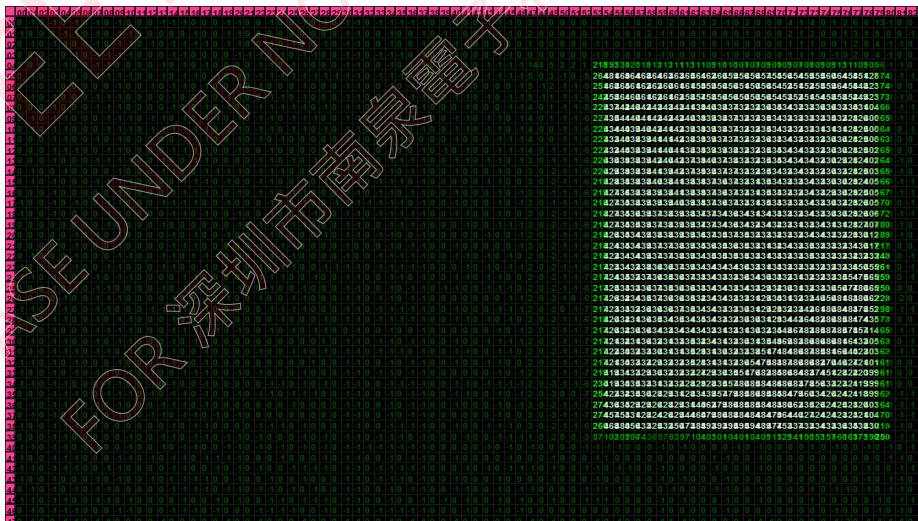
ii. From Image-Raw Signal

Please expand the tree menu on the left panel and select "Touch Panel 1". Switch to **Hardware** tab and click **Display** button.



Enable all the Tx and Rx channels and find the channels that can represent the boundaries of the Image.

※Please note that the channels with lower Raw Signal should be the shielding traces.



Set the Tx Channel Connection-Start(CH) =5, Rx Channel Connection-Start(CH) =54.

	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04	1	3	1	218	114	130	122	118	115	111	110	110	110	110	108	107	110	109	110	107	110	107
05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RxStart=54

TxStart=5

Set the Tx Channel Connection-To(CH) =38, Rx Channel Connection-To(CH) =78

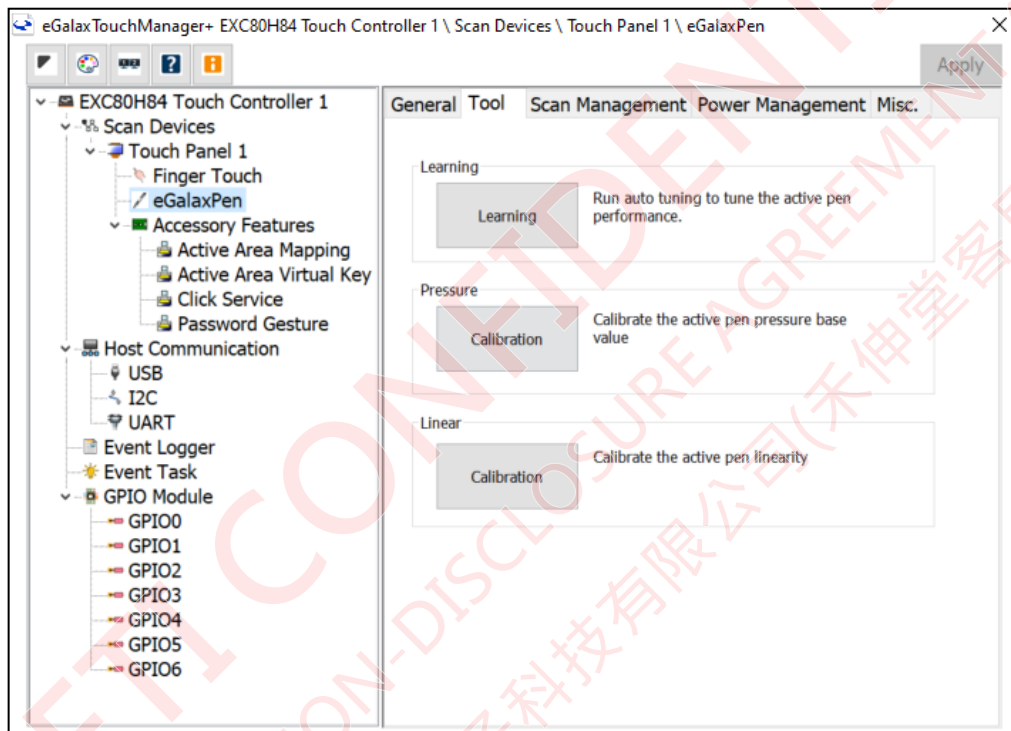
	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
22	435	435	435	435	435	433	432	433	433	433	435	432	432	432	432	433	433	247	-1	0	-1	-1
23	434	434	434	434	436	433	432	433	433	433	433	432	432	432	436	449	415	261	0	0	0	-1
24	433	433	433	433	435	433	430	433	432	431	432	432	432	435	455	475	415	259	0	0	0	-1
25	432	434	433	433	433	432	429	431	431	431	432	433	437	455	478	480	414	249	-1	-1	-1	-1
26	432	434	434	434	432	431	430	430	431	432	433	439	456	480	484	480	411	227	0	0	0	-1
27	434	433	433	433	430	430	430	429	431	433	442	461	481	484	483	478	412	198	0	-1	0	-1
28	435	434	433	433	430	430	431	429	434	444	463	482	487	485	482	474	414	172	-1	0	-1	-1
29	434	433	431	434	430	430	431	434	448	467	483	485	487	485	478	457	413	165	0	-1	0	-1
30	431	433	431	432	430	431	434	449	469	483	486	485	485	481	462	433	415	163	0	-1	0	-1
31	429	432	430	432	433	438	452	470	484	486	487	484	482	465	440	423	412	161	0	-1	-1	0
32	428	431	430	432	435	454	475	483	487	486	486	482	470	447	427	420	411	161	0	-1	0	0
33	428	429	431	434	451	477	481	485	486	484	483	474	451	429	423	419	319	161	0	-1	0	-1
34	429	428	435	457	480	485	485	485	486	484	478	456	433	424	420	418	319	160	-1	-1	-1	-1
35	431	440	457	479	485	486	485	485	484	479	460	434	426	423	420	418	319	161	-1	-1	-1	-1
36	441	463	479	487	485	485	484	483	480	463	435	426	424	424	423	420	412	164	-1	0	0	-1
37	460	479	486	488	485	484	484	480	465	440	428	424	424	422	423	421	414	169	0	-1	0	0
38	410	403	401	402	405	404	400	406	402	407	404	403	406	405	408	409	409	429	0	0	0	0
39	103	103	101	104	101	104	116	115	128	142	150	154	157	159	163	173	185	250	-1	-1	0	-1
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	-1
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	0
42	0	0	0	0	0	0	0	0	0	0	0	-1	0	-1	0	-1	0	0	-1	-1	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1
44	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	-1	0	0	-1	0	-1
45	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	0	-1	0	-1	-1	-1	-1
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	-1	0	-1	0

RxEnd=78

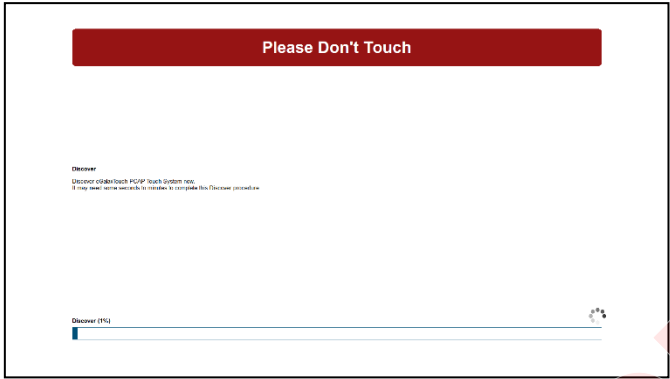
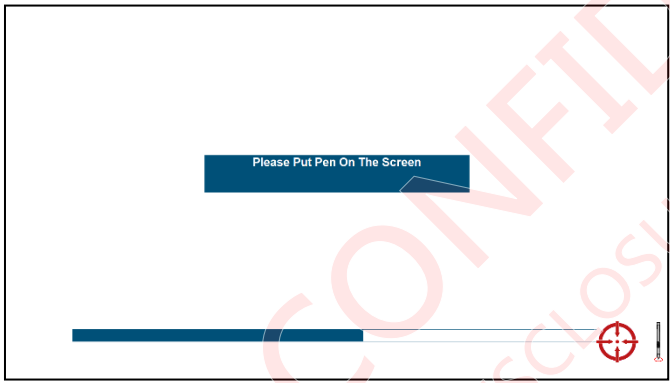

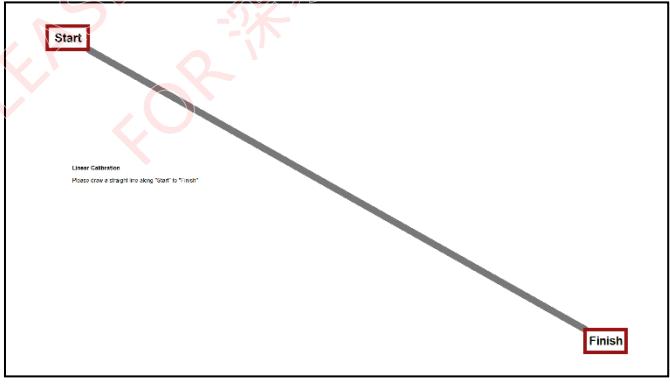
TxEnd=38

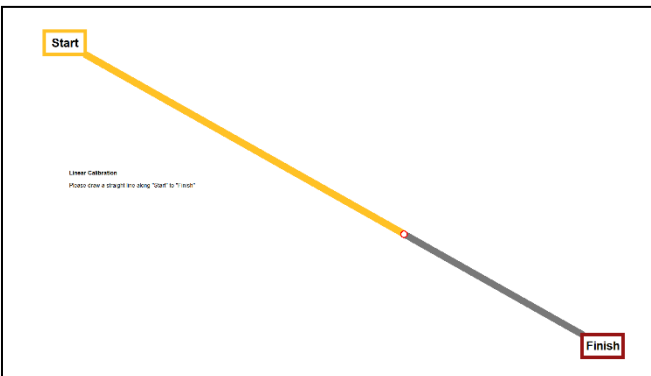
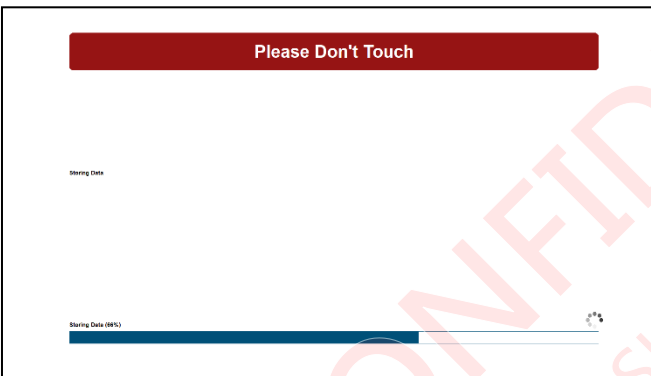
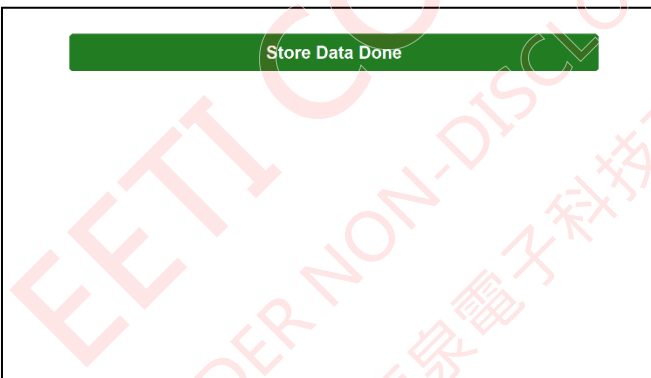

10.3. eGalaxPen Tuning

EETI controller supports eGalaxPen, an active stylus that provides comprehensive features, including pressure sensing, tilting sensing, functional buttons etc.. eGalaxPen can provide a smooth writing experience for users, just like writing with an actual pen. Through the **Learning** function, user can easily set up and optimize the aforementioned features. This chapter represents an overview of learning process for eGalaxPen.



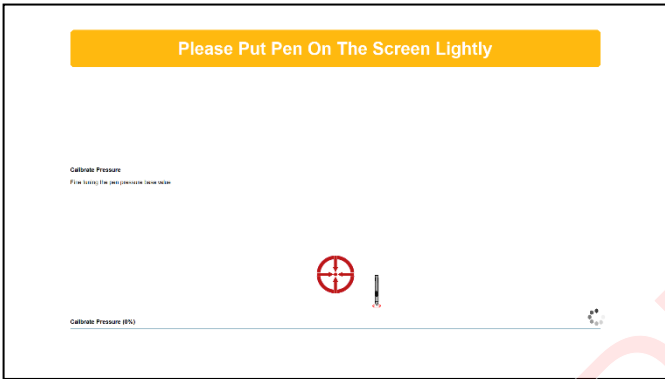
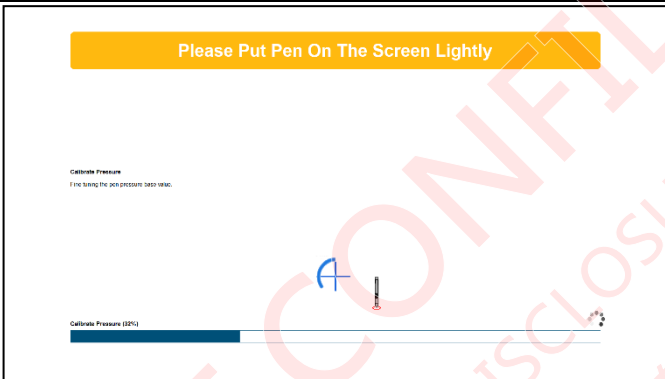

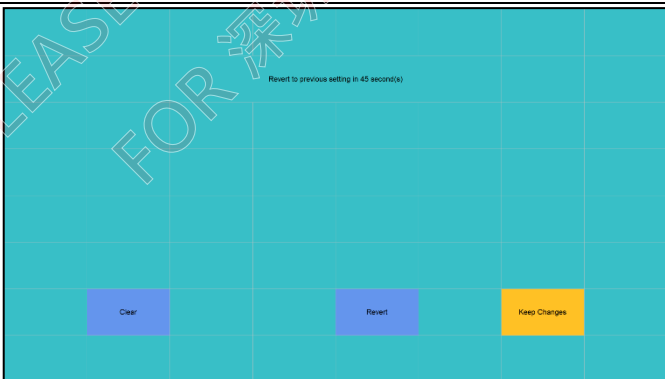
10.3.A. Signal Learning

Screenshot	Comment
	<p>TM+ is discovering the touch system. Do NOT touch during this process.</p>
	<p>Please put the eGalaxPen on the screen. TM+ is measuring the signal and will complete the relative parameter settings.</p>
	<p>TM+ is saving the calibration result. Do NOT touch the screen at this stage.</p>
	<p>This step is for linearity calibration. Please use eGalaxPen to draw along the line straight.</p>

 <p>Linear Calibration Please draw a straight line along "Start" to "Finish"</p>	<p>Please draw along the yellow line from the "Start" corner to the "Finish" corner. User can use a ruler to avoid jittering.</p>
 <p>Please Don't Touch</p> <p>Storing Data</p> <p>Storing Data (98%)</p>	<p>TM+ is storing the relative parameter data. Do NOT touch the screen at this stage.</p>
 <p>Store Data Done</p>	<p>The eGalaxPen Learning process is completed.</p>
 <p>Ready to resume testing in 45 second(s)</p> <p>Clear Revert Keep Changes</p>	<p>The Draw Test screen will pop up.</p> <p>User can test eGalaxPen performance and accuracy here. Please touch Keep Changes before the timer ends, <u>or the Learning results will not be saved.</u></p>

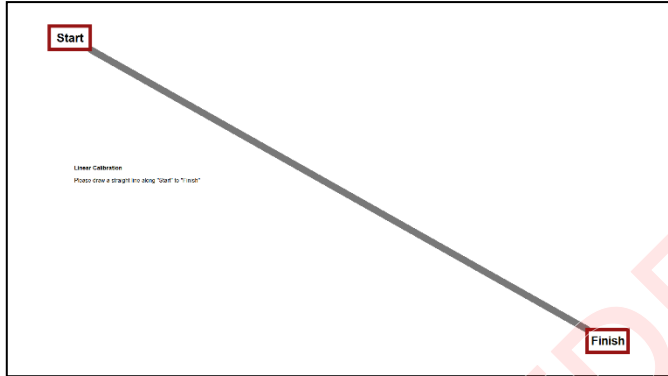
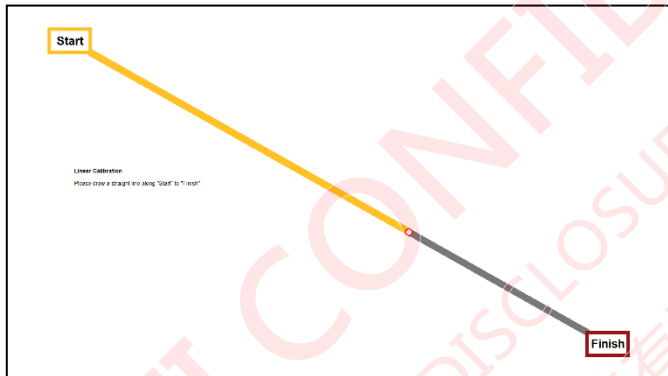
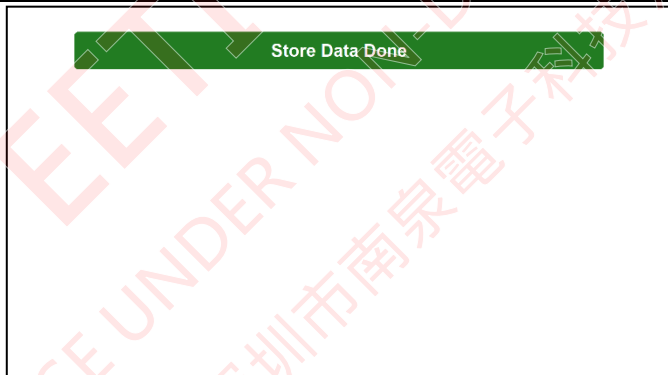

10.3.B. Pressure Calibration

Auto pressure calibration gives you a quick re-calibration for pressures sensing.

Screenshot	Comment
	<p>This step is for pressure sensing calibration.</p> <p>Please put the pen upright to the touchscreen slightly without any extra force.</p>
	<p>The controller is detecting and calibrating the pressure sensitivity.</p> <p>Please hold the pen still and do NOT move it.</p>
	<p>The eGalaxPen pressure calibration is completed.</p>
	<p>The Draw Test screen will pop up.</p> <p>User can test eGalaxPen performance and accuracy here. Please touch Keep Changes before the timer ends, <u>or the Learning results will not be saved.</u></p>

10.3.C. Linearity Calibration

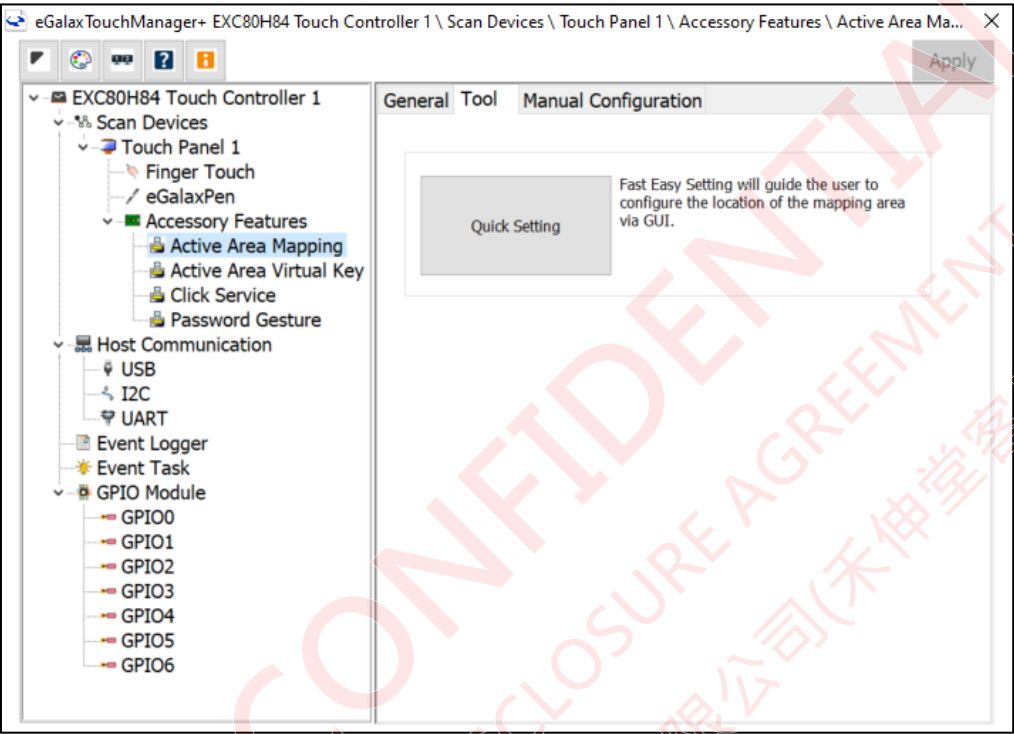
Auto linearity calibration gives you a quick re-calibration for drawing linearity.

Screenshot	Comment
	<p>This step is for linearity calibration.</p> <p>Please use eGalaxPen to draw along the line straight.</p>
	<p>Please draw along the yellow line from the "Start" corner to the "Finish" corner. User can use a ruler to avoid jittering.</p>
	<p>The eGalaxPen pressure calibration is completed.</p>
	<p>The Draw Test screen will pop up.</p> <p>User can test eGalaxPen performance and accuracy here. Please touch Keep Changes before the timer ends, <u>or the Learning results will not be saved.</u></p>

10.4. Quick Settings for Active Area

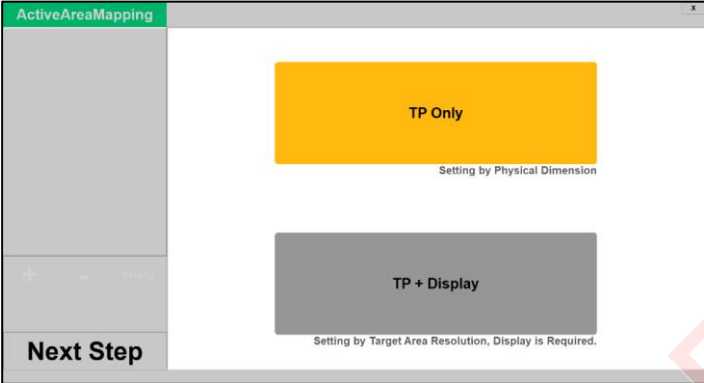
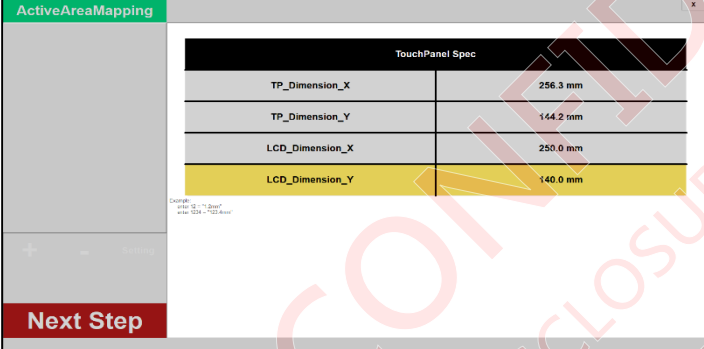
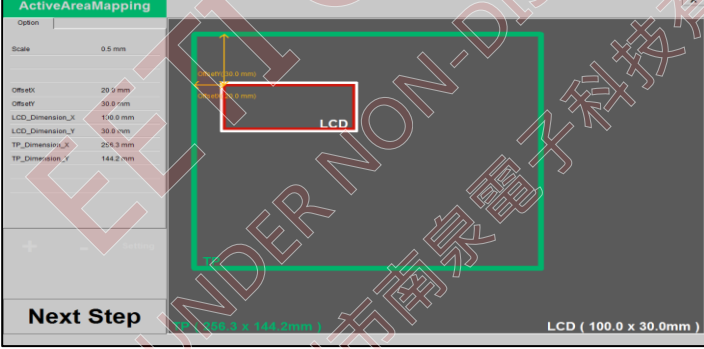
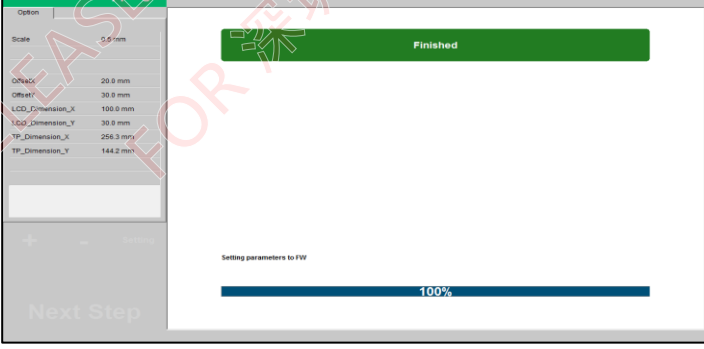
10.4.A. Active Area Mapping

Click the **Quick Setting** button in the **Active Area Mapping\ Tool** tab.

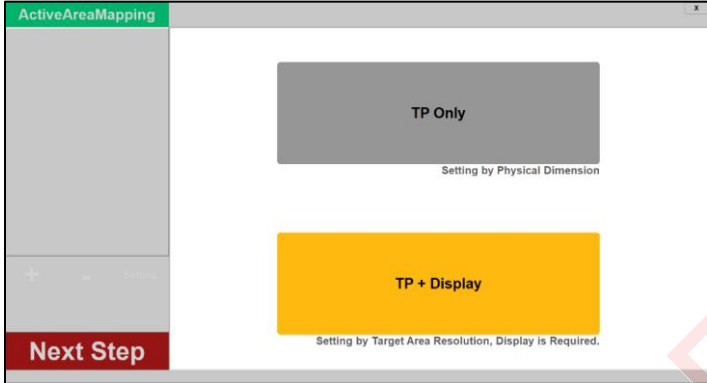
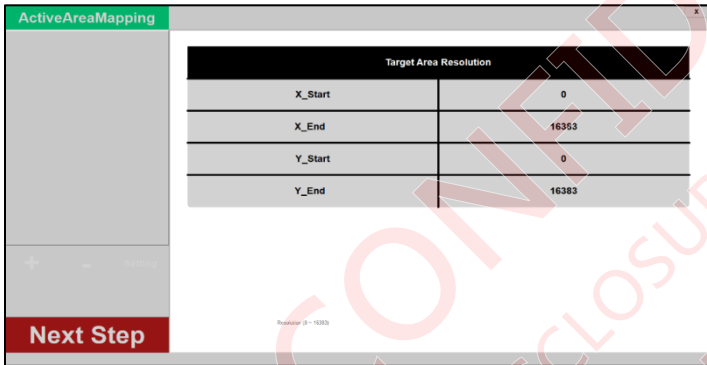
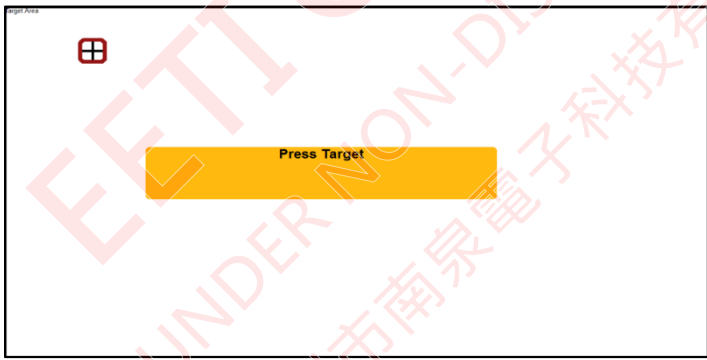
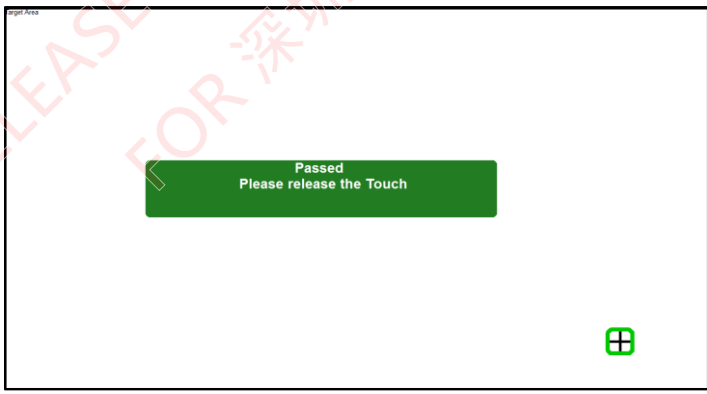


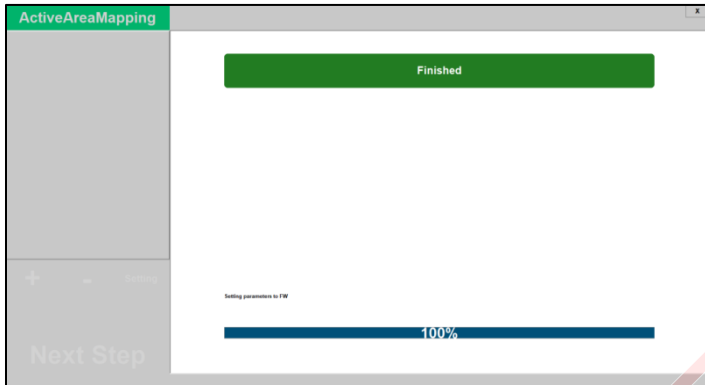
Screenshot	Comment
	User can define up to two active areas. Each active area's (Mapping Group) dimension and location can be configured individually. If only one active area is needed, please skip the settings for Mapping Group [2].

i. TP Only

Screenshot	Comment
	<p>You can select TP Only or TP+Display to customize the active area.</p> <p>If you have a touch panel without display, please click TP Only.</p> <p>If you have a touch panel with display, please click TP+Display.</p>
	<p>Please type in the dimension of the entire TP and the dimension of the LCD area.</p> <p>Click Next Step after all information is provided.</p>
	<p>To align the LCD area with the TP active area, please set the OffsetX and OffsetY until it looks right.</p> <p>User can still modify the dimension here.</p>
	<p>Active Area Mapping quick setting is completed.</p>

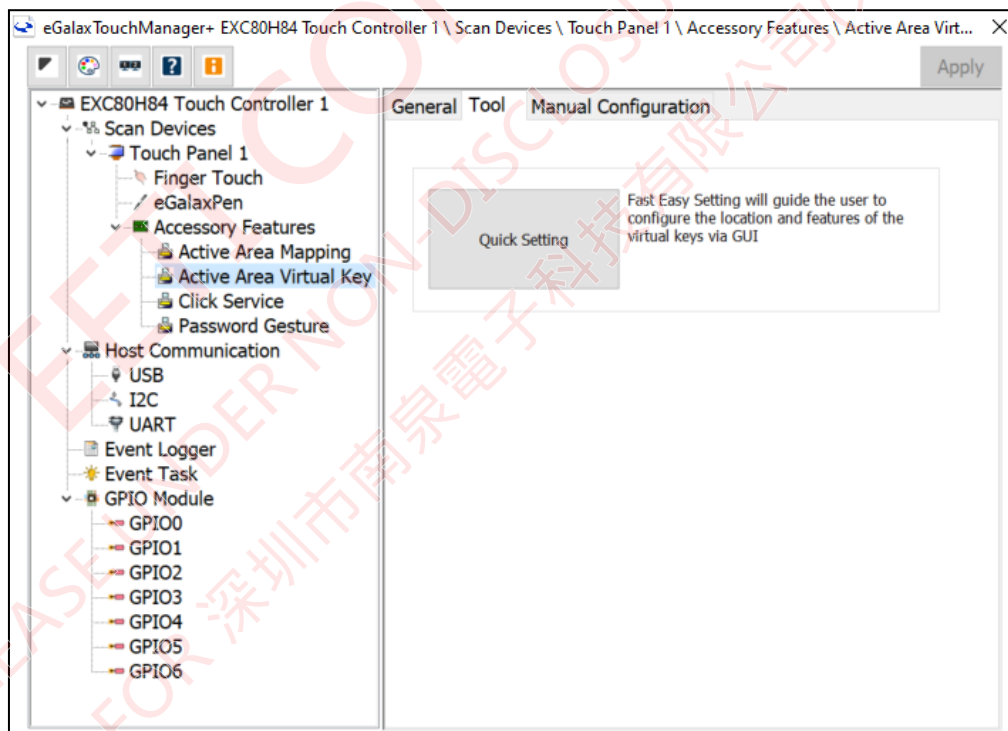
ii. TP+LCD

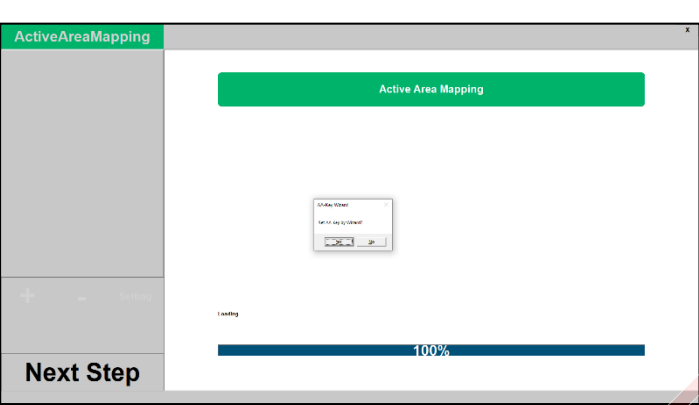
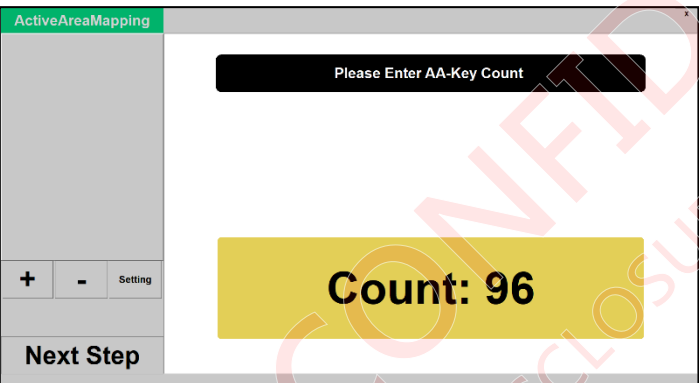
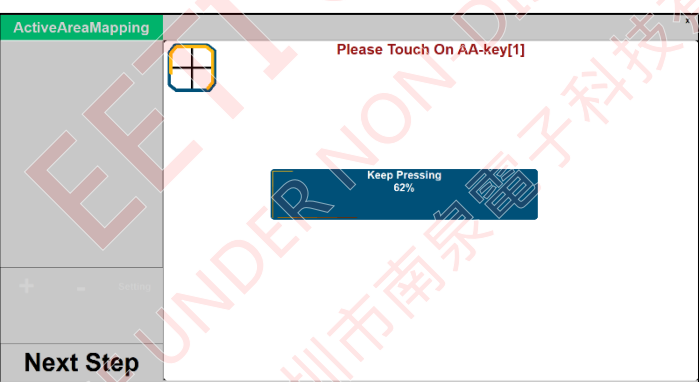
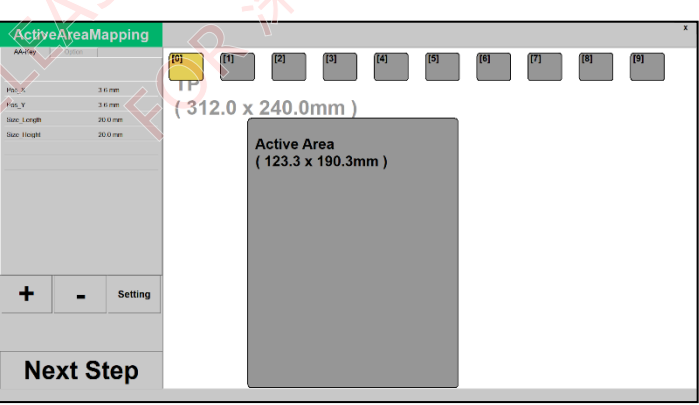
Screenshot	Comment
	<p>You can select TP Only or TP+Display to customize the active area.</p> <p>If you have a touch panel with display, please click TP+Display.</p> <p>If you have a touch panel without display, please click TP Only.</p>
	<p>Type in the range of the LCD area in resolution where the touch function should work.</p>
	<p>Press the target shown on the display to align the LCD with the active area.</p>
	<p>Hold the finger still when pressing all four targets.</p>

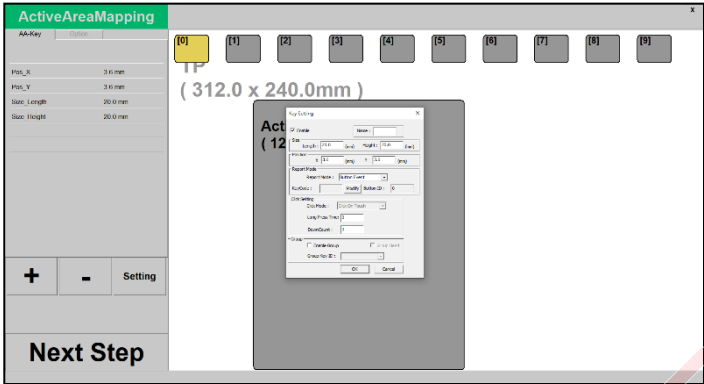
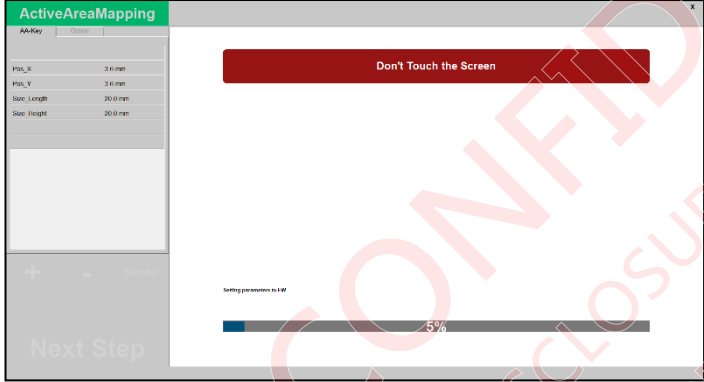

Screenshot	Comment
 <p>The screenshot shows the 'ActiveAreaMapping' window. At the top, a green bar indicates 'Finished'. Below it, a progress bar shows '100%'. The window also has a 'Next Step' button at the bottom left.</p>	Active Area Mapping quick setting is completed.

10.4.B. Active Area Virtual Key Quick Setting

Click the Quick Setting button in the **Active Area Virtual Key\ Tool** tab. (AA-Key)



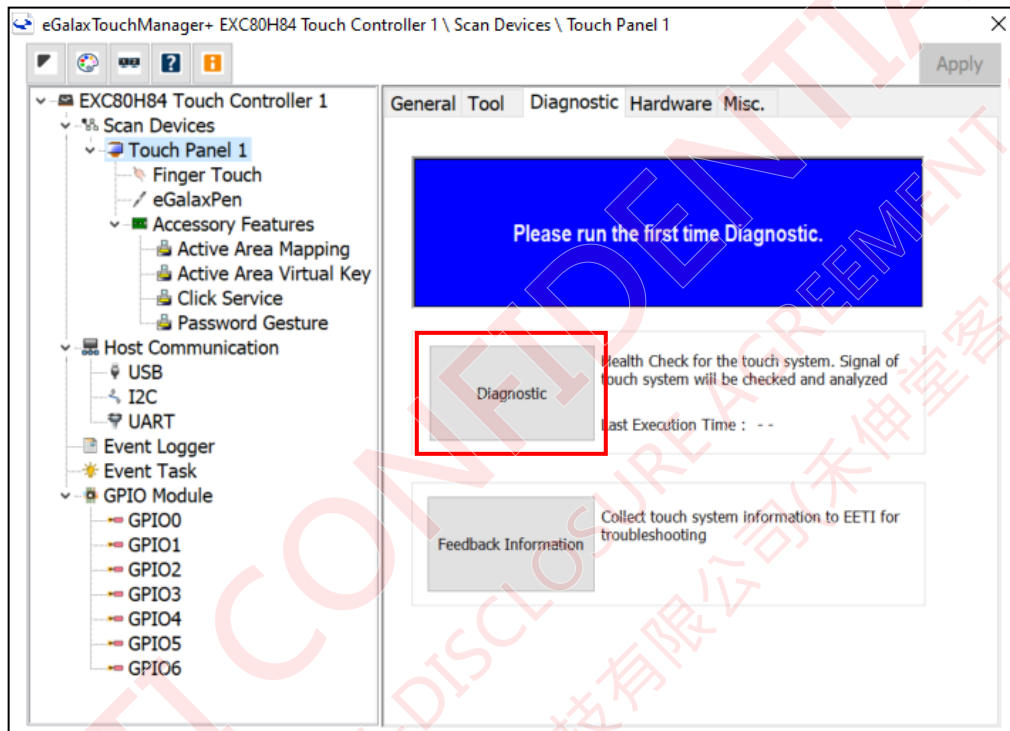
Screenshot	Comment
	<p><input checked="" type="checkbox"/> Yes for Setup Wizard to guide you through the configuration process.</p> <p><input type="checkbox"/> No for Manual Setting step.</p>
	<p>Setup Wizard:</p> <p>Click the <input type="text" value="+"/> / <input type="text" value="-"/> on the left panel to increase / decrease the number of AA-Key.</p> <p>You also can edit the number of keys with the numeric keys. The maximum number of keys supported by Orion Kernel is 96.</p>
	<p>Please press on the AA-Key and hold still to quick set the position of keys.</p> <p>After all the AA-Key setting has finished, you can continue to the Manual Setting step for more detailed parameters adjustment.</p>
	<p>Manual Setting:</p> <p>The AA-Key's size and position can be modified by the settings in the left panel. You also can drag the icon of keys to change the key's position.</p> <p><input type="text" value="+"/> / <input type="text" value="-"/> : Add / remove AA-Key.</p>

Screenshot	Comment
	<p>Click Setting for more detailed parameters settings. Including Name, Size, Position, Report Mode*, Click Setting and Group Set.</p> <p>* If users need AA-Key to report HID Key Code, please contact EETI for a customized Orion Kernel.</p>
	<p>After all the settings are done, please click Next Step to save the settings. Do NOT touch the screen during this process.</p>
	<p>AA-Key quick setting is completed.</p>


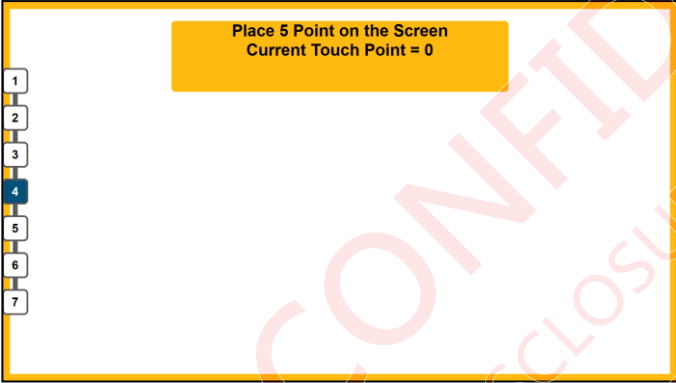
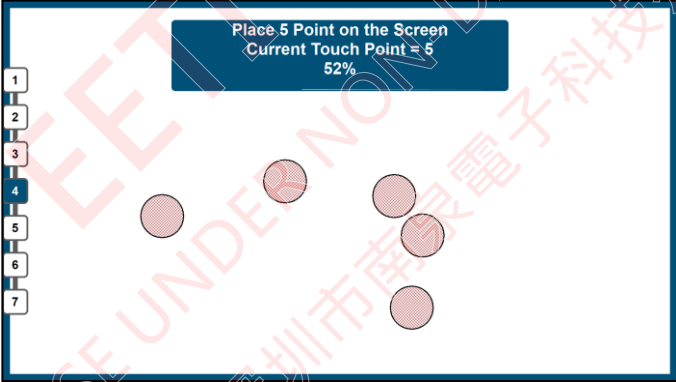
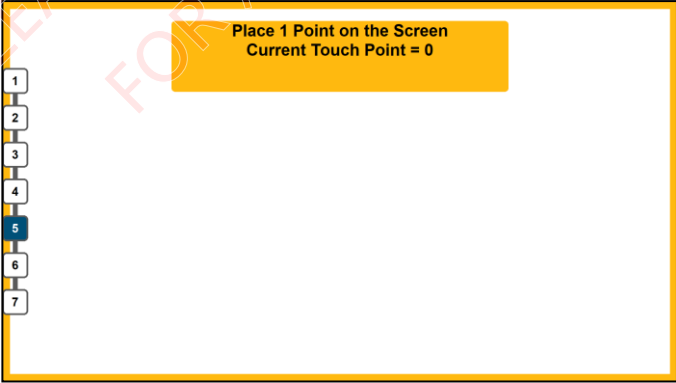
11. Extra

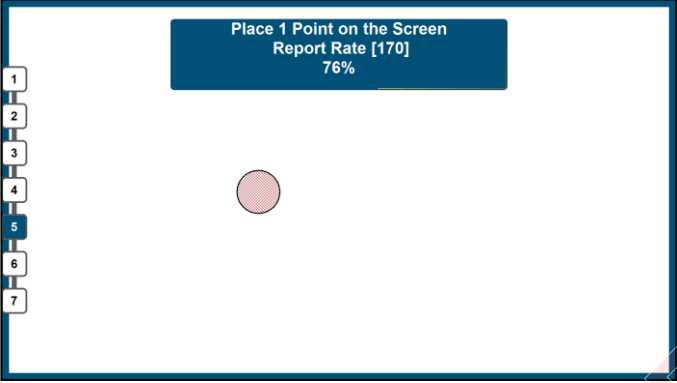
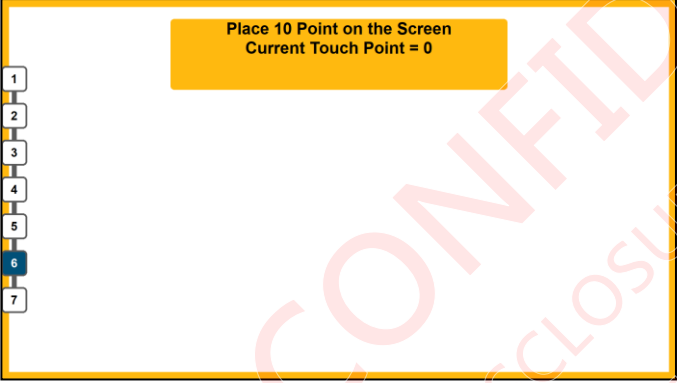
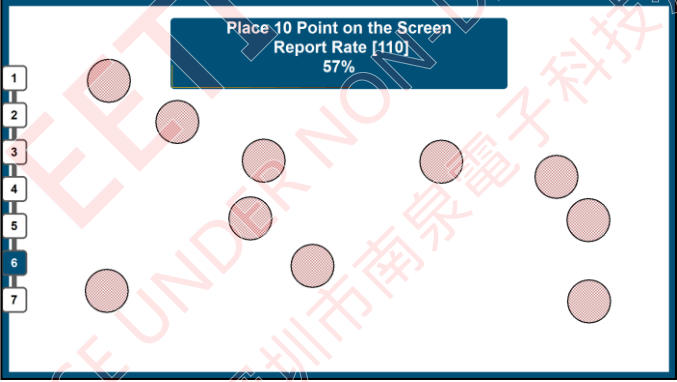
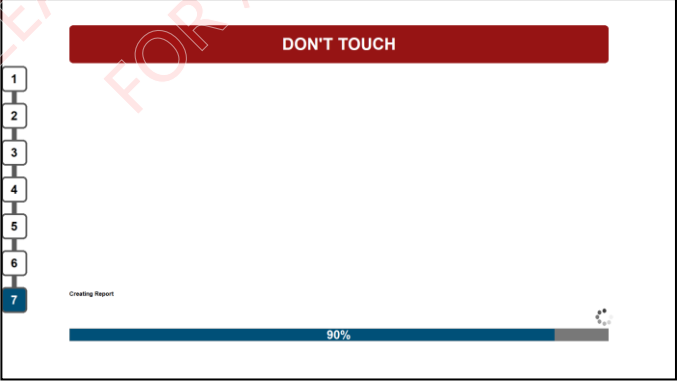
11.1. Diagnostic

User can run diagnostics to check sensor status and parameter feasibility, and send diagnostic feedback to EETI. Go to “**Touch Panel 1**” and “**Diagnostic**” tab. Click **Diagnostic** to run diagnostics.

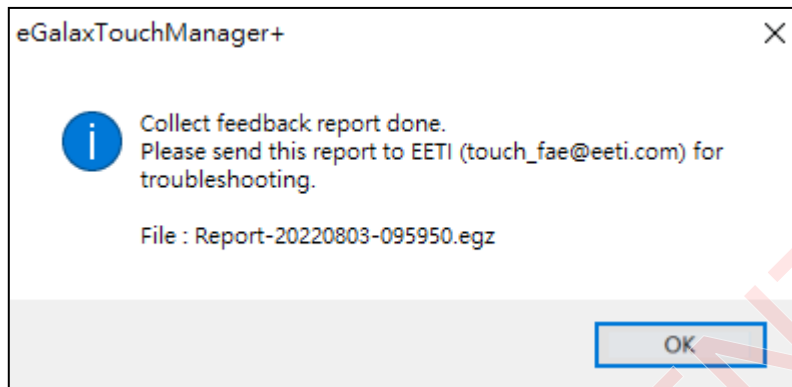


Screenshot	Comment
	<p>Once Diagnostic starts, TM+ will start to record the background signal. Please do NOT touch the screen at this stage.</p>

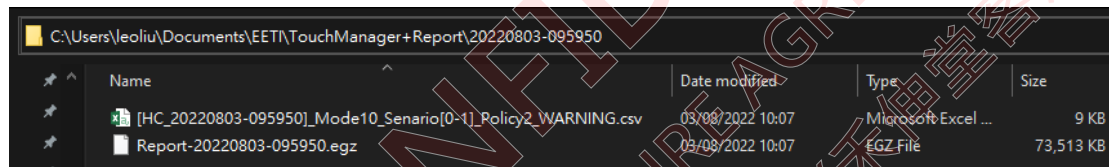
Screenshot	Comment
	Press the target and hold still. TM+ will collect the touch signal.
	Please place 5 touches on the screen and hold still. TM+ will collect the multi touch signal.
	During the data collection process, please keep the touches steady.
	Please place 1 touch on the screen and hold still. TM+ will measure the touch report rate.

Screenshot	Comment
	During the data collection process, please keep the touch steady.
	Please place 10 touches on the screen and hold still. TM+ will measure the multi-touch report rate.
	During the data collection process, please keep the touches steady.
	TM+ is analyzing the touch signal and creating a report.

Once the Diagnostic is complete, you will see this message. Please send the report to EETI's FAE team.



File directory : C:\Users\[UserName]\Documents\EETI\TouchManager+Report\

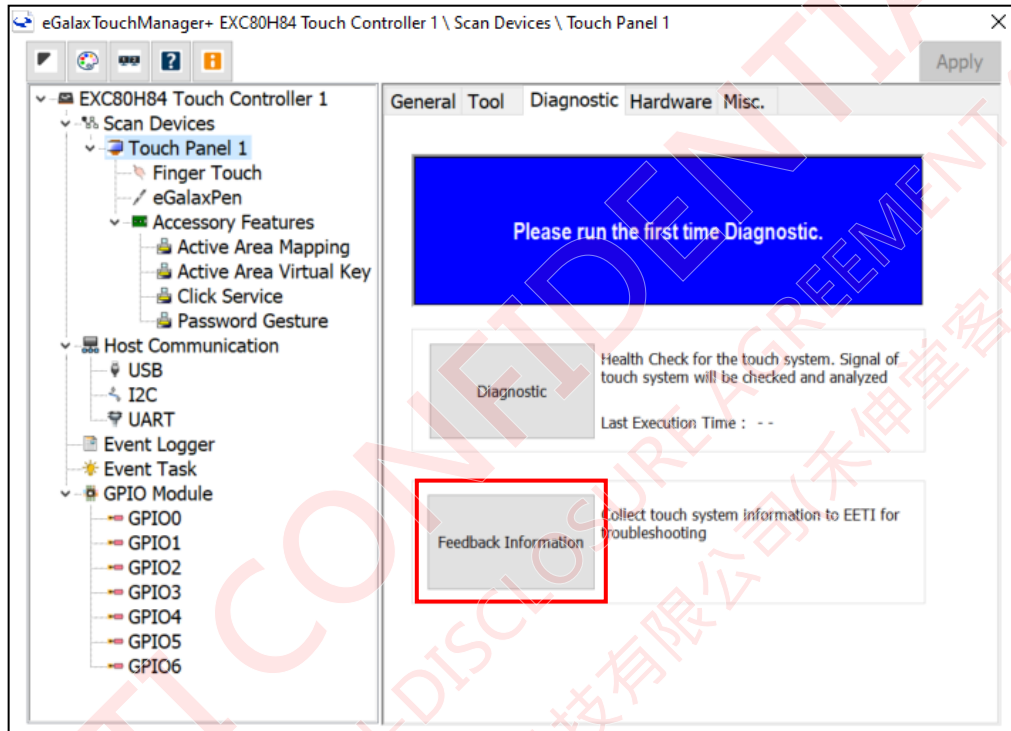


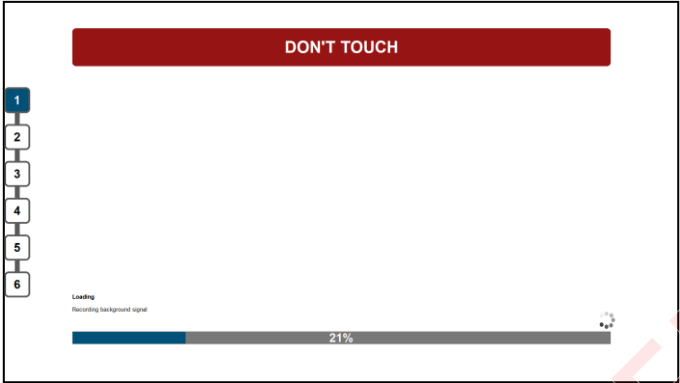


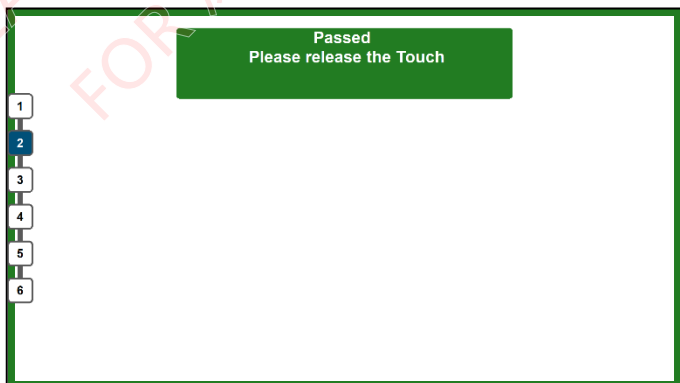
11.2. Feedback Information

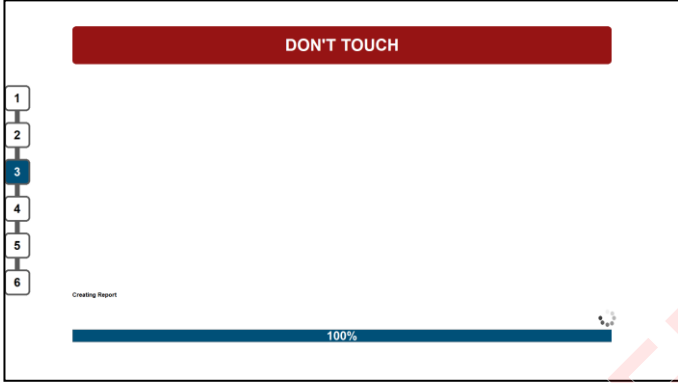
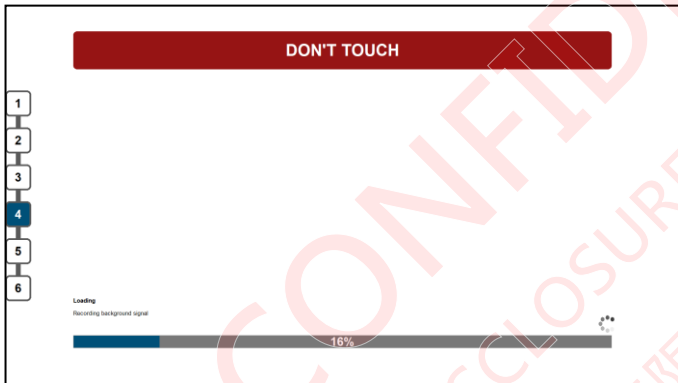

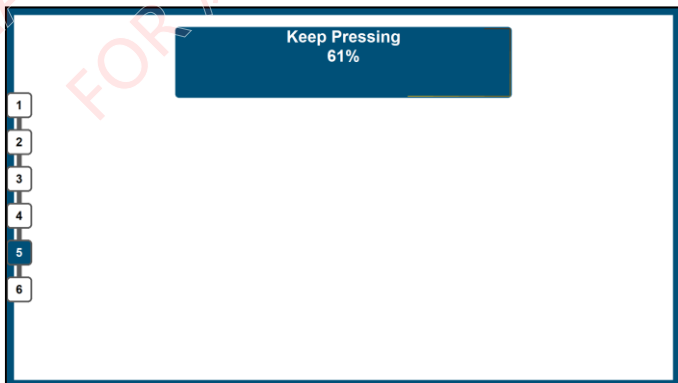
If there is any issue unsolved, user can collect touch system information and send feedback to EETI for troubleshooting.

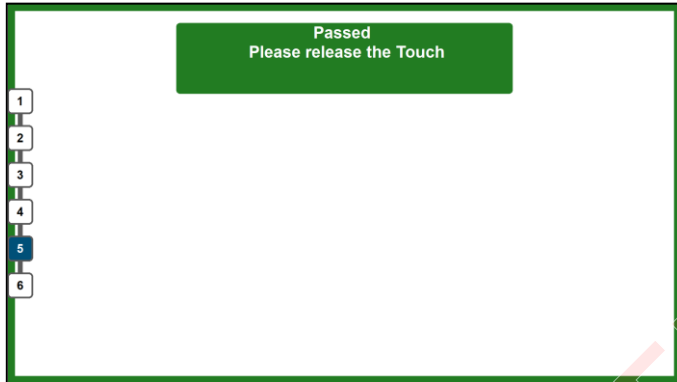
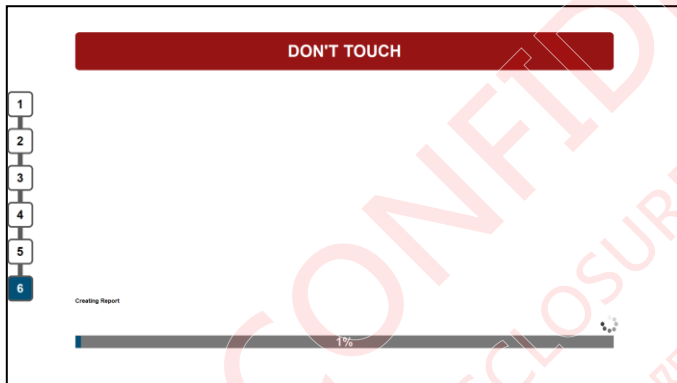
Go to “Touch Panel 1” and “Diagnostic” tab.

Click **Feedback Information** to collect touch system information and report to EETI.

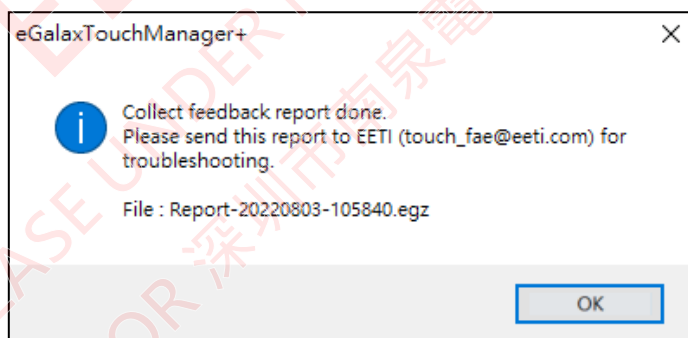


Screenshot	Comment
	<p>Once Feedback Information starts, TM+ will start to record the background signal. Please do NOT touch the screen at this stage.</p>
	<p>Touch anywhere on the screen. TM+ will collect the touch signal.</p>
	<p>During the data collection process, please keep the touches steady.</p>
	<p>Lift off your finger after the process is completed.</p>

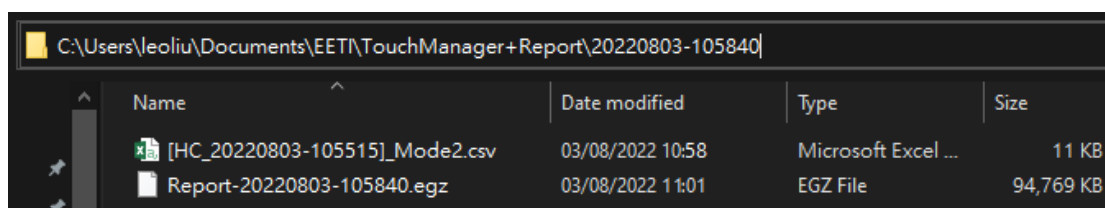
Screenshot	Comment
	<p>TM+ is analyzing the signal and creating a preliminary report.</p>
	<p>Repeat the same steps. TM+ will collect the signal twice to provide a more informative report.</p> <p>Please do NOT touch the screen at this stage.</p>
	<p>Touch anywhere on the screen. TM+ will collect the touch signal.</p>
	<p>During the data collection process, please keep the touches steady.</p>

Screenshot	Comment
	Lift off your finger after the process is completed.
	TM+ is now creating the final report.

After **Feedback Information** is completed, you will see this message. Please send the report to EETI FAE.



File directory : C:\Users\[UserName]\Documents\EETI\TouchManager+Report\





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